

RUSH UNIVERSITY



BULLETIN 1991-1992
RUSH-PRESBYTERIAN-ST. LUKE'S MEDICAL CENTER

Academic Calendar 1991-92

	X Courses	Y Courses	Z Courses
Orientation and Registration	September 12-13	September 12-13	
Fall Quarter Classes Begin	September 16	September 16	September 10
Classes End	November 22		
Examination Period	November 25-27		
Thanksgiving Holiday		November 28-29	November 28-29
Classes End		December 13	December 13
Examination Period		December 16-20	December 16-20
Winter Quarter Classes Begin	January 6	January 6	January 6
Classes End	March 13	March 13	March 13
Examination Period	March 16-20	March 16-20	March 16-20
Spring Quarter Classes Begin	March 30	March 30	March 30
Memorial Day Observed	May 25	May 25	May 25
Classes End	June 5	June 19	May 8
Examination Period	June 8-12	June 22-26	May 11-22
Commencement	June 13		
Summer Quarter Classes Begin	June 22		
Independence Day Holiday	July 3		
Classes End	August 25		
Examination Period	August 26-28		

Clinical Quarters in Medicine begin September 23, 1991, January 6, March 30, July 6, 1992.

Academic Calendar 1992-93

	X Courses	Y Courses	Z Courses
Orientation and Registration	September 10-11	September 10-11	
Fall Quarter Classes Begin	September 14	September 14	September 8
Classes End	November 20		
Examination Period	November 23-25		
Thanksgiving Holiday		November 26-27	November 26-27
Classes End		December 11	December 11
Examination Period		December 14-18	December 14-18
Winter Quarter Classes Begin	January 4	January 4	January 4
Classes End	March 12	March 12	March 12
Examination Period	March 15-19	March 15-19	March 15-19
Spring Quarter Classes Begin	March 29	March 29	March 29
Memorial Day Observed	May 31	May 31	May 31
Classes End	June 4	June 18	May 7
Examination Period	June 7-11	June 21-25	May 10-21
Commencement	June 12		
Summer Quarter Classes Begin	June 21		
Independence Day Holiday	July 5		
Classes End	August 24		
Examination Period	August 25-27		

Clinical Quarters in Medicine begin September 28, 1992, January 4, March 29, July 6, 1993.

X courses are offered by nursing and health sciences faculties

Y courses are offered by first-year medicine and graduate college faculties

Z courses are offered by the second-year medicine faculty

RUSH UNIVERSITY BULLETIN

1991-92

Rush-Presbyterian-St. Luke's Medical Center, Chicago

This Bulletin is published for the faculty and students of Rush University.

The University reserves the right to make changes in any or all specifications contained herein and to apply such revisions to registered and accepted students.

**Rush University
600 S. Paulina Street
Chicago, Illinois 60612**

Rush University

Degrees in the Health Professions

1991-92

Rush Medical College

Doctor of Medicine

College of Nursing

Bachelor of Science
 Master of Science
 Clinical Specialist Programs
 Anesthesia
 Home Health Care
 Gerontology
 Medical
 Oncology
 Parent/Child Health
 Psychiatry/Mental Health
 Surgical
 Doctor of Nursing
 Practitioner Programs
 Anesthesia
 Community Health
 Gerontology
 Neonatal
 Pediatric
 Doctor of Nursing Science

College of Health Sciences

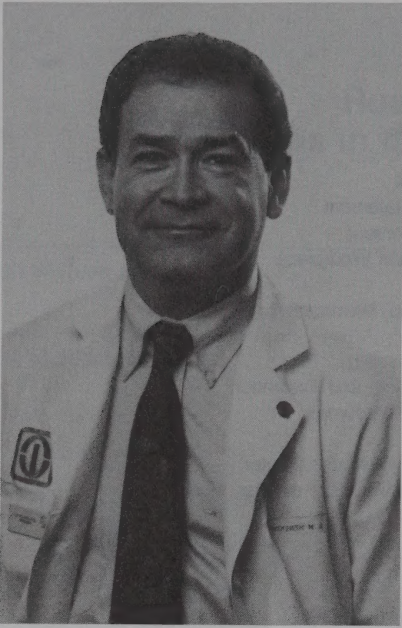
Bachelor of Science
 Medical Technology
 Perfusion Technology
 Master of Science
 Audiology
 Clinical Nutrition
 Health Systems
 Management
 Medical Physics
 Occupational Therapy
 Speech-Language
 Pathology

The Graduate College

Master of Science
 Anatomical Sciences
 Pharmacology
 Radiological Science
 Doctor of Philosophy
 Anatomical Sciences
 Biochemistry
 Immunology
 Medical Physics
 Pharmacology
 Physiology
 Psychology

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"Rush-Presbyterian-St.-Luke's is a major academic medical center on the national scene in a leadership position in many of its attributes and delivering the kind of care that is really second to none. It is within this environment of excellence and balanced emphasis on patient care, education, and scientific inquiry that future health professionals have the opportunity to grow in knowledge, understanding and skill."

Leo M. Henikoff, M.D., President
Rush-Presbyterian-St. Lukes Medical Center

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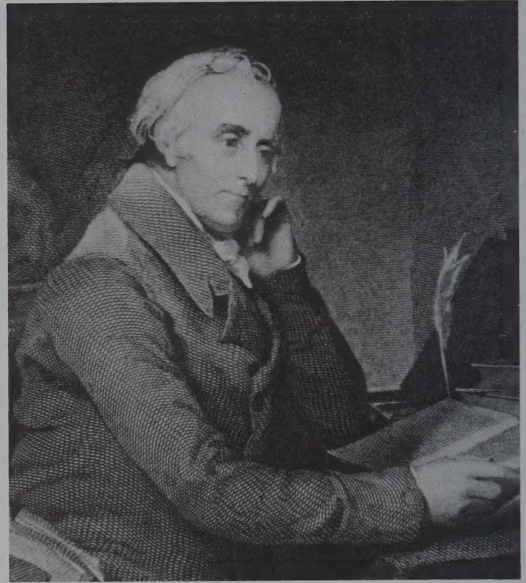
Medical Center Mission

The primary mission of Rush-Presbyterian-St. Luke's Medical Center (RPSLMC) is to improve the health status of a defined population through the development and operation of a voluntary health care system. This system is a multifaceted corporation that provides a full range of health care services, alternative financing arrangements, and organizational elements that are integrated through a single governance structure and through contractual relationships with other health care and educational institutions. High quality, compassionate, comprehensive health care services will be provided to a representative regional population and selected specialty services to a national population. New knowledge will be fostered and disseminated, and a broad spectrum of health manpower will be educated and trained through the system's academic component, Rush University. The full integration of the academic function with the health care function will reinforce the positive aspects of one on the other. The faculty and staff of Rush-Presbyterian-St. Luke's Medical Center will strive to achieve national and international leadership in setting standards of excellence in patient care, education, research and management. Rush-Presbyterian-St. Luke's Medical Center will maintain financial strength, effectively and efficiently manage resources, and be adaptive to the changing environment.

The Medical Center

Rush-Presbyterian-St. Luke's Medical Center is one of Chicago's oldest health care organizations. Its heritage extends back to 1837 when Rush Medical College was established. St. Luke's Hospital was founded in 1864 and Presbyterian Hospital in 1883. The merger of these pioneer institutions in 1969 created the present day Rush-Presbyterian-St. Luke's Medical Center, which includes:

- Rush University, a health professions higher education institution that enrolled 1,141 students in 1990-91.
- Presbyterian-St. Luke's Hospital, with 903 beds, a major referral center that provides primary care to its immediate community and secondary and tertiary care to patients from across the country. The hospital admitted more than 28,900 patients and performed over 20,000 operations the last fiscal year.



Rush University is named for Dr. Benjamin Rush, signer of the Declaration of Independence and the "Father of Modern Psychiatry"

- The Johnston R. Bowman Health Center for the Elderly, a short-term rehabilitation facility with 176 beds and a national model for hospital-based geriatric care. The center admitted 2,175 patients.
- Managed Care programs, including RUSH Anchor health maintenance organization with over 129,000 enrollees; RUSH Access Health, an independent practice association with a membership of over 44,000; RUSH Contract Care, a preferred provider organization that covered nearly 120,000 employees and dependents last year; and RUSH Occupational Health, which served about 3,000 employers.
- ArcVentures, which develops and markets health care products and services, including Proactive Health, pharmacy services, home health, collection services, and others.
- Corporately affiliated with the Medical Center are Rush North Shore Medical Center in Skokie, Illinois, and Copley Memorial Hospital in Aurora, Illinois. Rush North Shore has 284 beds and Copley, 323 beds.

The Medical Center is the hub of a network of 13 hospitals and health care agencies in the Chicago area, and in Indiana, and of an educational network of 17 colleges and universities in six states. (See Rush University Affiliations.) Through its own programs and in conjunction with its affiliated institutions, the Medical Center is the central initiating component of a comprehensive cooperative health organization designed to provide care for some 1.5 million people in northern Illinois. This network includes:

Associated Institutions

Christ Hospital and Medical Center, Oak Lawn, Illinois; 873 beds

Affiliated Institutions

Bethany Hospital, Chicago, Illinois; 212 beds
 Central DuPage Hospital, Winfield, Illinois 371 beds
 Elmhurst Hospital, Elmhurst, Illinois 392 beds
 Galesburg Cottage Hospital, Galesburg, Illinois 265 beds
 Grant Hospital of Chicago, Chicago, Illinois 508 beds
 LaGrange Memorial Hospital, LaGrange, Illinois; 276 beds
 LaPorte Hospital, LaPorte, Indiana; 227 beds
 Marianjoy Rehabilitation Center,
 Wheaton, Illinois; 100 beds
 St. Mary's Hospital, Streator, Illinois; 248 beds
 Swedish Covenant Hospital, Chicago, Illinois 355 beds
 West Suburban Hospital Medical Center,
 Oak Park, Illinois; 374 beds

Rush University Mission

The purpose of Rush University is to educate students as practitioners, scientists, and teachers who will become leaders in advancing health care. As a major component of Rush-Presbyterian-St. Luke's Medical Center, the University integrates patient care, education, and research through the practitioner-teacher model. Rush University encourages growth of its students by committing itself to the pursuit of excellence, to free inquiry, and to the highest intellectual and ethical standards.

The University

Rush University is the academic component of Rush-Presbyterian-St. Luke's Medical Center. Founded in 1972, the University has expanded from one college and fewer than 100 students to four colleges and over 1,100 students. It includes Rush Medical College, the College of Nursing,

the College of Health Sciences, and The Graduate College

Rush Medical College, chartered in 1837, opened officially on December 4, 1843, with 22 students enrolled in a 16-week course. During the first century of operation more than 10,000 physicians received their training at Rush Medical College. Rush Medical College was affiliated with The University of Chicago from 1898 until 1942, when the medical college temporarily suspended its educational program though it continued its corporate existence. Its faculty continued undergraduate and graduate teaching of medicine and the biological sciences as members of the faculty of the University of Illinois. The charter of the medical college was reactivated in 1969 when it became part of the Medical Center, and, in 1971, it reopened with a class of 66 first-year students and 33 third-year students. First-year class size reached its projected maximum of 120 in 1976.

The College of Nursing represents a combined heritage dating back to the late nineteenth century when its first antecedent, the St. Luke's Hospital Training School of Nursing, opened in 1885 to offer diploma education to nurses. In 1903, the Presbyterian Hospital School of Nursing accepted its first students and, from 1956 to 1968, nurses were taught at the merged Presbyterian-St. Luke's Hospital School of Nursing. Before the establishment of the College of Nursing in 1972, more than 7,000 nurses had graduated from these three schools. Currently, approximately 200 baccalaureate, master's and doctoral nursing students graduate each year.

The College of Health Sciences, established in 1975, traces its origins to the School of Medical Technology sponsored by Presbyterian-St. Luke's Hospital from 1959 to 1972. This school was the second largest of its kind in the city of Chicago. During its operation, it provided a one-year professional internship program to more than 200 baccalaureate students in medical technology. Today, the College of Health Sciences offers six programs at the master's level in addition to bachelor's programs in medical technology and perfusion technology.

The Graduate College was established as a separate academic unit in January, 1981, having previously been organized as the Graduate School within the College of Health Sciences. The Graduate College is responsible for educational programs in the basic sciences and offers the master's degree in three disciplines and the doctoral degree in seven.

Student Characteristics. In 1990 students ranged in age from 18 to 57, with undergraduates averaging 26 years; graduates, 32 years; and professional students, 25 years. Over 80 percent of the students lived in Illinois prior to entering Rush. The 1,141 students include 17 Hispanic, 125 Asian/Pacific Islander, 62 Black Non-hispanic, 2 Native Americans and 30 international students.

The Philosophy

The University was established in response to demands for a more effective and humane health care system that could supercede highly specialized, fragmented and often geographically inaccessible patient care services. The Rush System for Health, the conceptual framework adopted to address these problems, offers a prototype that could become a model for the delivery of health care in this country. This system is unique in many ways. A central concept is that the academic and care elements of health delivery systems must be united. The implementation of this concept differentiates Rush from many typical health universities. First, at the foundation of the University is an outstanding patient care setting. Presbyterian-St. Luke's Hospital is recognized as one of the top 20 hospitals in the country; its existence as a high quality patient care institution made the development of the University feasible. Most faculty and students have clinical responsibilities in this setting or in one of the institutions linked to Rush-Presbyterian-St. Luke's Medical Center. Therefore, faculty function both as clinicians and as teachers. This combination ensures that faculty members bring up-to-date knowledge to the clinical setting while transmitting professional expertise in the classroom. Another distinctive feature of Rush University is its commitment to health maintenance and illness prevention.

Fall 1990 Enrollment	Men	Women	Total
Rush Medical College	251	231	482
College of Nursing	33	393	426
College of Health Sciences	19	105	124
The Graduate College	41	24	65
Unclassified	12	32	44
Total	356	785	1141

Traditional approaches to health care delivery are based on giving care to the seriously ill. Today, only about 12 percent of the population requires such care. At Rush one major focus in the classroom is on pathology and prevention of disease. This is supplemented by clinical experiences with inpatients and outpatients.

Programs of Study

Rush University confers the bachelor of science (B.S.), master of science (M.S.), doctor of nursing (N.D.), science (D.N.Sc.), doctor of medicine (M.D.) and doctor of philosophy (Ph.D.) degrees. Within the undergraduate nursing program, an R.N. completion option meets the needs of registered nurses for a university education. All baccalaureate programs (nursing, medical technology and perfusuion technology) begin in the junior year of study after completion of two years of course work at other accredited colleges or universities.

Master of science programs are offered by the College of Nursing and the College of Health Sciences. The College of Nursing has concentrations in anesthesia, community health, gerontology, medical, oncology, parent/child health, psychiatry/mental health, and surgical nursing. In the College of Health Sciences, a student may major in audiology, clinical nutrition, health systems management, occupational therapy, medical physics and speech-language pathology.

Doctoral programs include the doctor of nursing, doctor of nursing science, doctor of medicine and the doctor of philosophy. Students in The Graduate College may concentrate in anatomical sciences, biochemistry, immunology, medical physics, pharmacology, or physiology. A number of students enroll in concurrent M.D./Ph.D. programs.

Equal Opportunity Policy

Rush University encourages and gives full consideration to all applicants for admission and financial aid regardless of race, sex, religion, color, national origin, age or handicap. The University is committed to attracting candidates who will help to make the population of health care professionals more representative of the national population. The equal opportunity coordinator for academic affairs has been designated as the University's coordinator for the implementation of these policies. The equal opportunity coordinator may be contacted by telephone at (312) (942-7093 or by mail (room 764-A, Academic Facility).

Policy on Harassment

The Management Committee of Rush-Presbyterian-St. Luke's Medical Center has adopted policies and procedures on harassment for the University and nonacademic sectors of the institution. These policies and procedures are intended to emphasize the Medical Center's longstanding commitment to preventing harassment and to focus on the internal resolution of any complaints. Under these policies and procedures the more familiar category of sexual harassment as well as harassment related to race, color, religion, national origin, ancestry, age, marital status, physical or mental handicap and unfavorable discharge from military service is prohibited. The provisions include protections for and prohibit retaliation against an individual making a complaint or supplying information about a complaint; they also incorporate protections for a person who considers himself or herself falsely accused. Inquiries or complaints of harassment from students, residents, or faculty members will be handled in a strictly confidential manner through the offices of the equal opportunity coordinator for academic affairs or the director of the student counseling center. Every effort will be made to resolve a complaint informally, but procedures have been established for a formal hearing if that is necessary or preferred. Copies of the Policies and Procedures on Harassment are available from the Office of the Equal Opportunity Coordinator for Academic Affairs (room 764-A, Academic Facility). If you have any questions regarding the matter of harassment, please get in touch with either the equal opportunity coordinator for academic affairs at 942-7093 or the director of the student counseling center at 942-3687.

University Statement on Academic Honesty

As students and faculty of Rush University, we all belong to an academic community with high scholarly standards. Academic honesty is essential for maintaining the relationship of trust that is fundamental to the educational process. The occurrence of academic dishonesty is a violation of one of the most basic ethical principles of an academic community and will result in sanctions imposed under the University's disciplinary system. A partial list of academically dishonest behaviors that would subject a student to disciplinary action includes the following:

CHEATING: Using unauthorized material or unauthorized help from another person in any work submitted for academic credit.

FABRICATION: Inventing information or citations in an academic or clinical exercise.

FACILITATING ACADEMIC DISHONESTY: Providing unauthorized material or information to another person.

PLAGIARISM: Submitting the work of another person or persons as one's own without acknowledging the correct source.

UNAUTHORIZED EXAMINATION BEHAVIOR: Conversing with another person, passing or receiving material to or from another person, or temporarily leaving an examination site to visit an unauthorized site.

University Statement on Student Conduct

Rush University seeks to create a climate that encourages its members to act as responsible adults in an academic community. Generally, institutional disciplinary measures are invoked only in response to conduct that adversely affects the University/Medical Center's pursuit of its educational objectives and mission. Penalties may range from a warning to probation, suspension, or expulsion from the University/Medical Center. A partial list of disruptive behaviors that would subject a student to disciplinary action includes the following:

1. All forms of academic dishonesty.
2. Obstruction or disruption of teaching, research, administration, or other University/Medical Center property of a member of the University/Medical Center community.
3. Theft of or damage to University/Medical Center property or the property of a member of the University/Medical Center community.
4. Physical abuse of any person or action that threatens or endangers the safety of others.
5. Misrepresentation, falsification, alteration, or misuse of University/Medical Center documents, records, or identification.
6. Unauthorized use or entry of University/Medical Center facilities.
7. Conduct that is inconsistent with the ethical code of the profession the student is preparing to enter.
8. Unlawful use or possession of controlled substances.
9. Unlawful use or possession of firearms or other weapons.

Drug Free Campus and Workplace

Rush-Presbyterian-St. Luke's Medical Center is committed to achieving and maintaining a drug free campus and workplace. The Medical Center has established a drug free policy consistent with its commitment and goals. The policy states in part:

1. The illegal manufacture, distribution, dispensing, use, sale and/or possession of controlled substances on Medical Center property or while performing Medical Center business is strictly prohibited. An employee or student engaged in any such conduct will be subject to discipline up to and including expulsion or termination. In addition, students and employees are subject to all applicable criminal penalties under local, state or Federal Law for unlawful possession or distribution of illicit drugs and alcohol.
2. Employees and students must report to the Medical Center any conviction for violation of a criminal drug statute occurring within the Medical Center within five days of the conviction.
3. The health risks associated with the use of illicit drugs and the abuse of alcohol are many and varied. Some drugs may cause psychological and physical dependence or addiction. Others attack the central nervous system, making the user dangerous to himself and others. In the extreme, they can result in convulsions, psychosis, coma and possible death.

An Employee Assistance Program is available for any employee experiencing problems from, among other things, drug or alcohol abuse or dependency. Use of the program can be made by contacting the Department of Social Services at extension 2-5358. Students may seek similar assistance through the Student Counseling Center by calling extension 2-1439.

4. This policy is a condition of employment which all employees accept by continuing to work here. In addition, it is a condition of enrollment which all students accept by continuing to study here.

Research

Research expenditures totaled more than \$17 million last year. The faculty of the University encourages investigation of both the normal and disease processes and the distribution of the delivery of health care services. The faculty believes that inquiry into these areas by students should be encouraged if they are to become practicing professionals who will continue to learn throughout their careers. All research studies conducted at Rush- Presbyterian-St. Luke's Medical Center are listed in a research report published biannually by the Office of Research Administration.

Accreditation

- Rush University is fully accredited by the North Central Association of Colleges and Schools, the regional accrediting association.
- Rush Medical College is accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges.
- Graduate medical education is accredited by the Accreditation Council of Graduate Medical Education.
- The College of Nursing is accredited by the National League for Nursing.
- The anesthesia nursing program is accredited by the Council on Accreditation of Educational Programs for Nurse Anesthesia.
- The clinical pastoral education (CPE) program is accredited by the Association for Clinical Pastoral Education.
- The health systems management program is accredited by the Accrediting Commission of Education for Health Services Administration
- The medical technology program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences for the American Medical Association's Committee on Allied Health Education and Accreditation.
- The occupational therapy program is accredited by the American Occupational Therapy Association for the American Medical Association's Committee on Allied Health Education and Accreditation

Authorization

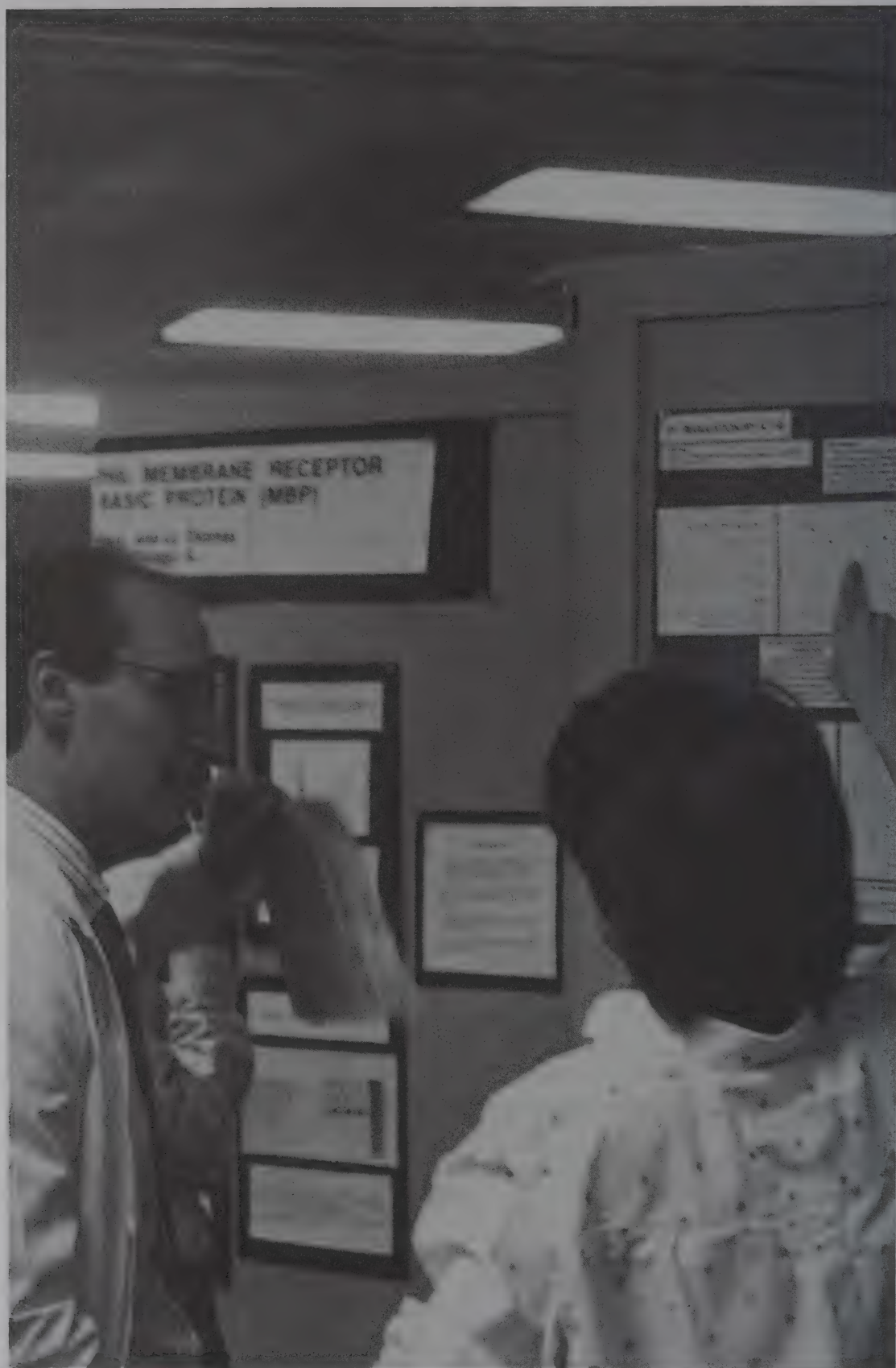
- The state of Illinois Board of Higher Education has authorized all degree programs offered through Rush University

Licenses

- Department of Public Health, State of Illinois
- Cook County Board of Health

Memberships

- Association of American Medical Colleges
- North Central Association of Colleges and Schools
- Federation of Independent Illinois Colleges and Universities
- American Society of Allied Health Professions
- National League for Nursing
- American Hospital Association
- Illinois Hospital Association
- Chicago Hospital Council
- American Association of Colleges of Nursing
- Blue Cross/Blue Shield Health Care Service Corporation



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Academic Computing Resources

The Academic Computing Resources (ACR) department operates and maintains facilities to provide educational computer resources to Rush University faculty, staff, and students. These resources include the Personal Computer (PC) and Computer Assisted Instruction (CAI) laboratories, computerized test grading and survey scanning, and support for new computerized instruction projects.

The PC laboratory allows patrons to explore business and educational microcomputer applications with ACR's ten IBM compatible and four Macintosh computers, laser printers, and dot matrix printers. Use of the PC lab facility has grown to over 1,000 hours per month. Patrons have access to the PC lab seven days a week on a sign-up basis.

Available software applications include: wordprocessing, spreadsheet, database, statistical analysis, and graphics packages, software application tutorials, and the AMA-FREIDA database. The PC lab can also be used by instructors as a classroom. An ACR staff member is available at all times to provide assistance as necessary. Computer diskettes, paper, and transparencies are provided at a reasonable cost.

The CAI laboratory serves as a delivery facility for over 850 computer-assisted instruction programs. Over 22,000 hours of computer-assisted instruction have been delivered in the CAI laboratory in the past three years. The lab is accessible 24 hours a day, seven days a week, and is also available to instructors as a classroom. The lab contains 15 microcomputers, two of which are dedicated videodisc stations, and three dialup ports which allow IBM PCs to access the PLATO computer network from outside Rush.

The computerized test grading and course evaluation services are available to instructors. Printouts provide test and evaluation results and statistical analysis to determine question validity.

The ACR office staff provide designing, programming, and evaluating assistance to instructors developing computer-assisted instruction for student use. The laboratories provide delivery facilities for these programs. The staff also provides assistance to faculty in the location and delivery of applicable off-the-shelf instructional courseware.

Academic Skills Center

The Academic Skills Center offers individual and group counseling and workshops to students who wish to improve their study and learning

skills. The staff helps students assess and work on their time management, reading, notetaking, test taking, writing and related skills. The center also offers assistance to students for whom English is a second language. Study behavior, learning style, reading and test anxiety assessments are administered.

The center works closely with the other academic resources of the University and serves as a contact point for referrals to these resources. Assistance is offered in finding appropriate content tutors.

Student contact with the center is confidential and no information will be released to another person or to any office without the prior consent of the student.

Individual consultation is available Monday through Friday between 9:00 a.m. and 3:00 p.m. on a walk-in basis. Appointments may be arranged. University faculty frequently refer students to the center.

Group sessions can be arranged as needed. Workshops on selected study skills are presented when requested.

Services provided by the Academic Skills Center are free.

Alumni Relations

The Office of Alumni Relations is located in the 1700 W. Van Buren Building. It has been established to provide a planned, coordinated program of service and activities of mutual interest and benefit to Rush University, the Medical Center, and all alumni.

Although Rush University, founded in 1972, is a relatively young institution, it has already conferred more than 5,300 degrees in the health professions since its inception, and this dynamic growth continues.

The objectives of the alumni relations office are to provide channels for alumni of Rush Medical College, the College of Nursing, the College of Health Sciences, The Graduate College and the House Staff to remain informed of current developments at the Medical Center; develop an active interest in and involvement with their alma mater; maintain contact with fellow alumni and faculty; take advantage of continuing education opportunities offered through Rush University; respond positively through both financial and philosophical support and promote and perpetuate the high standards of excellence in patient care, education and scientific advancement consistent with the objectives of Rush-Presbyterian-St. Luke's Medical Center.

Formally organized alumni associations exist for graduates of Rush Medical College, the College of Nursing, and the Department of Health Systems Management. As the numbers

of alumni increase from the other programs, organizational efforts are being undertaken for them as well. For more information concerning membership in one of the existing alumni associations or services available through the alumni relations office, call 942-7165 (Medical College) or 942-7199 (Nursing, Health Sciences, Graduate Colleges).

Alumni Associations

Rush Medical College. The Alumni Association of Rush Medical College is an active organization dedicated to supporting the educational goals of the college. Purposes of the organization are to maintain communications between alumni and the college; to honor alumni who have given distinguished service to the profession of medicine and/or to their alma mater; to promote and encourage the highest standards of medical education; to assist the faculty and staff of the college in any way possible and to provide financial support for the operation of Rush Medical College.

Prior to its reactivation in 1969, Rush Medical College conferred 10,976 doctor of medicine degrees. Alumni and Trustees of the Medical Center were responsible for keeping active the original charter granted to the college by the State of Illinois in 1837. The alumni also maintained the Rush Medical College Library and made financial grants for postgraduate education during the college's inactive period. Rush alumni practice in all 50 states and in 11 foreign countries. Since the reactivation of Rush Medical College in 1969, Rush University has conferred more than 1,900 doctor of medicine degrees.

The Alumni Association is represented on the Board of Trustees of Rush-Presbyterian-St. Luke's Medical Center by two alumni who are elected annually, the president and immediate past-president of the Alumni Association.

College of Nursing. The Rush-Presbyterian-St. Luke's Nurses Alumni Association is an active organization with the following goals: to unite the graduates of Rush University College of Nursing, Presbyterian-St. Luke's Hospital School of Nursing, Presbyterian Hospital School of Nursing, and St. Luke's Hospital School of Nursing for mutual assistance, protection, and preservation of fellowship; to promote the professional and educational advancement of nursing; to provide financial assistance and offer networking advice to current students; and to support the interests of the Rush University programs in nursing.

All graduates of these schools of nursing are considered active members of the Alumni Association. Each year, graduates return at

Homecoming to tour the facilities and to learn what is happening at the Medical Center. From 1887 through 1968 there were 7,221 graduates of the diploma programs of the various schools. Many of them have served with distinction around the world. Since the founding of the College of Nursing in 1972, Rush University has conferred over 2,650 nursing degrees.

Many alumni support the Rush University nursing programs financially through the Golden Lamp Society, which provides leadership gifts to the college.

The association also gives an annual award to the outstanding graduate of the College of Nursing.

College of Health Sciences. The Alumni Association of the Department of Health Systems Management program is dedicated to the following goals: to advance knowledge and techniques in the field of health systems management; to maintain interest in potential and enrolled students; to facilitate graduate participation in continuing education activities; to provide objective recommendations for the development of the program; to provide opportunities for graduates to share their work experiences with students and other alumni; to serve as a network for job search and career advancement.

The first class of ten students graduated in June, 1981. Since that time the Alumni Association has grown to 129 members. An annual meeting and reception is held in conjunction with the Health Systems Management National Invitational Symposium on Hospital and Health Affairs.

Rush Surgical Society. This society recognizes the many surgeons who have been trained at the Medical Center but who may not have been graduates of Rush Medical College. Members automatically include all past, present and future trainees and faculty who have participated in a surgical laboratory, surgical clinical program or both.

The society's purpose is to support the Medical Center by promoting educational, scientific, and social aspects relating to surgery.

Medical Society. An equivalent group was established in medicine called the Rush Internal Medicine Alumni Association. This society was officially launched in April 1987. The society's purpose is to facilitate contact and communication among former internal medicine house officers and to honor alumni who have given distinguished service to the profession of medicine.

Biomedical Communications

The Department of Biomedical Communications provides media production and technical services for patient care, education, and research. Offices are located on the fourth floor of the Academic Facility.

Medical Photography creates photographic prints, slides, transparencies, photomicrographs and motion pictures. The staff of scientific photographers offers a variety of services from the creation of visuals for classroom use to visuals that appear in national and international publications and conferences.

Medical Illustration and Design creates visual material to facilitate communication of both simple and complex medical health care information. The staff are available to produce a broad range of illustration styles including realistic anatomical/surgical renderings, abstract graphics, nonmedical illustration and cartoons. Graphic design services staff are available for coordinating and producing brochures, logos, exhibits and promotional materials. In addition, computer generated art is available for multi-colored slides as well as black and white publication quality charts and graphics.

Media Services provides a wide variety of projection and technical support: the production of media programs in television, slide/tape, and audio formats; consulting and training in the design and use of media systems; and courses in the design and production of media programs within Rush University. The section operates the Communication Skills Training Center and the Rush Television Network including the Patient Information Network, Professional Education Network and Surgical/Pathology Television System.

The Campus

The main campus of the University/Medical Center is located on the west side of Chicago not far from the Loop. The area surrounding the campus is undergoing much redevelopment. Of particular interest is the Chicago Technology Park, incorporating biomedical research facilities and programs. New townhomes and condominiums have been built in Garibaldi Park, just east of the campus, and many new businesses are flourishing in the Taylor Street area. With other health care facilities in the Medical Center District—including the University of Illinois-West Campus, Cook County Hospital, Westside Veterans Administration Hospital, Illinois State Psychiatric Institute, and others---

Rush is centrally and conveniently located. In 1989, The Inn at University Village, a hotel with Benjamin's restaurant, opened on a corner adjacent to the Medical Center.

On the main campus which now consists of 22 buildings on the 35-acre main campus, are facilities for achieving the goals of the Medical Center: patient care, education and research. The age of the buildings spans nearly a century although most of them have been constructed within the past 20 years. Faculty and students use nearly all facilities, which creates a very rich environment for learning.

Most student activities take place in the Academic Facility and Schweppe-Sprague Hall. The Library of Rush University and the McCormick Learning Resource Center are in the Academic Facility, along with student classrooms, laboratories, academic computing, specialized facilities, the Rush University Bookstore, cafeteria, and some administrative offices, including those for Rush Medical College. Schweppe-Sprague Hall houses student services personnel, classrooms, student lounge and activity center, the College of Nursing and the College of Health Sciences administrative offices, and other specialized facilities, such as the Student Counseling Center.

Housing options for students include limited room in Schweppe-Sprague Hall, the upper floors of Kidston House and apartments at Center Court Gardens, located just east of the Medical Center. Many students also live in private housing in the area surrounding the Medical Center.

Laboratories are located throughout the Medical Center complex but are principally found in Jelke-Southcenter.

In addition to the main campus, Rush includes Rush North Shore Medical Center, located in Skokie, and Copley Memorial Hospital located in Aurora. Directly across the Eisenhower Expressway from the main campus is a new office building for ANCHOR Health Maintenance Organization, finance, legal affairs, philanthropy and communication, the data center and other functions of the Medical Center.

Tennis courts and a running track are located on the main campus as well as an indoor parking facility.

The Office of Student Affairs distributes a campus map to new students and publishes a student handbook annually. The handbook includes a yellow pages section that provides locations and telephone numbers of persons, offices, departments and buildings of interest to students.

Counseling Services

Open all year, the Student Counseling Center provides professional counseling, at no charge to students, for a variety of concerns ranging from academic problems to issues of personal development. Students have sought help for test anxiety, insomnia, study difficulties, career questions, eating disorders, parenting concerns, general anxiety, depression, and marital and/or relationship problems. In addition to counseling of individuals and couples, the center offers group and workshop experiences. The center has offered ongoing support groups for male nursing students, first-year medical students, and students with compulsive eating problems; in addition, a workshop on assertiveness training in medical school clerkships has been offered.

The Student Counseling Center maintains strict standards of privacy and confidentiality. No information on an individual student is released to anyone, inside or outside of the University, without the prior consent of the student. No student contact with the Counseling Center becomes a part of any other University record.

The office is located on the eighth floor of Schweppe-Sprague Hall.

Curriculum Development and Evaluation

The Office of Curriculum Development and Evaluation offers University courses in measurement, evaluation, and curriculum design. The office consults and lectures in areas related to curriculum planning and educational evaluation. Students, faculty, and staff are invited to contact the office for advice on design and execution of research studies or for assistance in one of the following areas:

- curriculum and instructional development, which includes activities such as refinement of objectives and syllabi, development of instructional strategies and description of the instructional domain.
- evaluative study of educational programs, which includes participant/observer course evaluation, test development and interpretation, comparison of instructional strategies, and faculty development.
- research planning and implementation, which includes research design, questionnaire development, survey design, design of sampling plans, instrument validation, statistical analysis, and interpretation of results.

Consultation is available for the development of proposals for education, research, and training grants. Occasionally, staff members conduct research in health care education with professionals outside of Rush University.

General Educational Resources

The Office of General Educational Resources (GER) is responsible for providing students, faculty and staff with a wide range of services necessary for carrying out both laboratory and classroom instruction. GER's management of the spacious, flexible facilities located on the seventh floor of the Academic Facility enables it to meet multiple needs for educational space, equipment, and other support. In addition, GER manages the flexible classrooms located at the south end of the seventh floor and also operates the Quick Copy Center. The multidisciplinary laboratory complex consists of eight laboratory/classrooms, seven support rooms and a central core demonstration area. Within the area are the electron microscope facilities and a small dark-room for scientific use by faculty and students. GER staff offer cardiopulmonary resuscitation and basic life-support training for individuals and groups. The office is responsible for provision of microscopes and other scientific equipment for educational uses, including the microscope rental plan (see below).

The Quick Copy Center, located on the seventh floor of the Academic Facility, duplicates materials for educational purposes as well as general needs. A full range of services, including front and back copying, full color copying, electronic page formatting with graphics and typesetting, and multiple binding options are offered through the center. Special rates are available to students for note cooperatives and organizations. Personal work of over ten copies can be accommodated for faculty and students at a reasonable fee.

Students and faculty who have instructional needs which require special accommodations should check with the supervisor of general educational resources for assistance. GER space is routinely open 50 hours during the week for scheduled classes, noncurricular instructional activities and study. Teaching and learning aids, such as microscopes, can be made available upon request. Classroom space is usually open for study purposes from 5:00 p.m. to 8:00 a.m.

Microscope Rental. Students must have microscopes for medical technology, anatomy, and pathology courses. Students who do not own a microscope may rent one through Rush University (see Financial Affairs). A carrying case and an off-campus pass (valid for the duration of

the rental period) are provided with each rental microscope. Since students will be held responsible for microscope damage and loss, homeowner's or apartment insurance is recommended. GER provides lockers to store the microscopes and distributes major course syllabi and microscope slide sets to those lockers.

Library of Rush University

The Library of Rush University, although the oldest health sciences library in Chicago, maintains an up-to-date collection of books and journals that serve the entire University and Medical Center. The collection consists of 50,216 books, 54,766 bound serial volumes, and 2,236 current subscriptions. The most valuable and noteworthy works stemming from the early years are maintained in a Rare Book and Special Collections. Housed in an attractively furnished two-story area, the library has large easy chairs, carrels, and tables for studying or reading.

The reserve collection is in closed stacks behind the circulation desk. A staff of nine professional librarians and 19 technical personnel is available to assist library patrons. Guided tours and an orientation to the library are available during registration periods and on request. The library schedules frequent classes for individuals and groups on the automated catalog and mini-MEDLINE systems. There are also classes on library research and end-user computer searching, tailored to meet the specialized needs of different departments. The Library Guide describes library services, circulation periods of books and journals, and hours of operation.

Patrons are encouraged to use the automated library catalog for information about books, journals, and audiovisuals. The catalog identifies items by subject, any word in the title, author, or year of publication. Information about the item---whether it is checked out or on the shelf, and where it is located in the library---is provided. An important feature of the automated catalog is the ability to find recent journal article references and abstracts by searching mini-MEDLINE. This abbreviated version of the National Library of Medicine's data base includes almost five years of 400 journal titles to which Rush subscribes.

Reference librarians provide assistance in locating and obtaining information and published materials. They also search computerized data

bases. The computer search service is one of the most heavily used services of the library. The library also has a collection of 11 CD-ROM computer databases in specialized subject areas that are available for patrons to perform their own computer searches.

McCormick Learning Resource Center

The Chauncey and Marion Deering McCormick Learning Resource Center (MLRC) of the Library of Rush University, an audiovisual learning facility, houses an audiovisual media collection and provides on-site support equipment for its use. MLRC is designed to encourage independent study and self-enrichment and to provide access to reserve audiovisual materials. Seven rooms allow large and small group media viewing with either 1/2" VHS videocassette, 3/4" videocassette, 16mm film, videodisc, audiocassette, slide, or slide/audiocassette. Three of the rooms are connected to the Rush Television Network, the Medical Center's closed-circuit television patient education system. Another room houses 17 individualized video and slide/audiocassette carrels. MLRC staff are always available during service hours to help with equipment operation.

Primary Purposes of MLRC are to build the audiovisual media collection and provide services for the Medical Center which include purchase, preview, rental, and interlibrary loan of audiovisuals. The present media collection numbers 3,301 titles and is accessible by the Library Information System (LIS), the joint Library/MLRC on-line catalog. All media in the collection have been previewed and recommended for purchase by faculty. All programs in the collection may be reserved in advance by faculty and students for use within MLRC or elsewhere in the Medical Center.

The MLRC provides complete media reference services. The staff assists faculty and students in locating commercially produced media for use within their courses. This service includes consultation with Audiovisuals On-Line (AVLINE), the National Library of Medicine audiovisual data base, and compilation of customized media bibliographies from which faculty and students may select titles for preview.

MLRC provides free, portable electric typewriters and portable audiocassette recorders to students for overnight use at no charge.

MLRC staff will arrange individual and group orientations to departmental services upon request. Additionally, MLRC sponsors monthly showings of recent films of general interest to health sciences professionals.

Service hours are as follows:

Monday through Thursday 8:00 a.m. - 11:00 p.m.

Friday 8:00 a.m. - 6:00 p.m.

Saturday 9:00 a.m. - 6:00 p.m.

Sunday 1:00 p.m. - 7:00 p.m.

Hours may be shorter during vacation periods and in summer. The MLRC serves as a 24-hour study hall.

Student Affairs

The Rush University Office of Student Affairs works closely with students to enhance the quality of their lives outside the classroom. Every academic year a survey is developed to assess students' interests. With this information the Office of Student Affairs and the Rush University Board strive to create a variety of social, multicultural, educational, and recreational programs. Ample opportunity is provided to students to influence these programs by being an active member of the Rush University Board, which is open to students of all colleges. Student Affairs is located in Schweppe-Sprague Hall 023 where there is a student lounge for students to congregate.

Clubs and Organizations. The Office of Student Affairs is always interested in helping students establish new clubs and organizations in addition to informally advising the current organizations. The staff will assist all organizations in encouraging active participation by its members and in achieving its goals.

Some of the current organizations include: Rush University Board, American Medical Association, Christian Medical Dental Society, Med Tech Club, Nursing Christian Fellowship, Nursing Student Government Association, Rush Student Medical Association, and the Student Nurses Association. A complete description of these organizations is listed in the student handbook which is available from Student Affairs.

Rush University Board. The Rush University Board is the primary resource for student programs. Some of these programs have included a weekly film series, casino night, Friday evening socials known as "T.G.I.F.s", noontime treats, concert outings, sporting events and educational programs. Input is encouraged from all students throughout the academic year. This is an excellent opportunity for students to get involved and meet a variety of people from

different colleges. Watch the bulletin boards located in the Academic Facility and Schweppe-Sprague Hall for the latest programs.

Student Representation. Student representation is unique to each college. Class committee and Faculty Council representatives comprise the Student Council of Rush Medical College. The council's purposes are to increase communication among the four classes and to give students a combined, representative voice on issues that confront them. Elections for Student Council and several standing committees are held each November.

The Student Senate in the College of Nursing is comprised of students elected to various committees such as admissions and evaluation, curriculum, affirmative action, educational resources, faculty resources and development, and faculty senate. In addition, course representatives are elected.

Students are elected to membership on the College Council in the College of Health Sciences and also serve on committees in individual programs. Students in The Graduate College elect two students to serve on The Graduate College Council.

Career Development. Each student is assigned an academic advisor who is a member of the faculty. The advisor is knowledgeable about the student's educational program and provides assistance in curriculum selection, academic progression, and professional and career development.

Within Rush Medical College, an assistant dean within the Office of Medical Student Programs has specific responsibility for providing counseling about specialty choice and application for postgraduate residency positions.

Each year, the Office of Student Affairs sponsors programs to acquaint undergraduate students with a variety of job opportunities available at health care institutions. Additionally, Student Affairs offers assistance in resume writing and interviewing techniques and maintains resource materials to aid students in their job search. Biographical data and any faculty recommendations are kept on file and sent out at the students' request.

Lockers. The University provides lockers for the storage of coats and books. New students receive locker assignments at orientation. Since the Medical Center assumes no responsibility for the loss of personal property from lockers, it is unwise to store valuables, such as purses or tape recorders, in the lockers. Additionally, students should be aware that all students share lockers.

If any difficulties with a locker arise, contact the Office of Student Affairs.

Mailboxes. Campus mail is delivered to student mailboxes located on the seventh floor of the Academic Facility and the first floor of Schweppe-Sprague Hall. Since no United States mail is delivered to these mailboxes, arrangements should be made to have all personal mail sent to home addresses.

New students receive mailbox assignments at orientation and should check for mail daily because University personnel distribute dated material through this campus system. Since students are held responsible for meeting deadlines announced in the dated material, students who will be off campus for an extended period of time should make arrangements to have a friend forward campus mail. The Office of Student Affairs is not responsible for mail that accumulates during a student's absence.

Students may obtain interoffice mail envelopes from the Office of Student Affairs. Address the envelopes and either return them to student affairs, the student mail basket at the receptionist's desk in Schweppe-Sprague Hall, or deposit them in the student mailbox located on the northwest wall of the mailroom on the seventh floor of the Academic Facility.

Recreation. Rush University students have the opportunity to utilize several facilities in the area for recreation, relaxation, and physical conditioning.

- A jogging track (approximately one-fifth of a mile) surrounds four outdoor tennis courts next to the Atrium Building on the corner of Ashland Avenue and Harrison Street.
- Rush University students may also use recreation facilities at the University of Illinois - Chicago. The south wing of the Circle Center and the Illini Center provide space for archery, table tennis, bowling, swimming, billiards, handball, racquetball, tennis, badminton, volleyball, weightlifting, target practice and jogging. Students presenting a valid Rush University identification card are eligible for admission at reduced rates. Schedules of the facilities, rates, and hours of operation are posted in the Office of Student Affairs at Rush University.

Housing. Resident students may live in four floors of Kidston House, Center Court Gardens

and on two floors of Schweppe-Sprague Hall. All of these buildings are located within the Medical Center. Individual units range from single occupancy dormitory rooms in Schweppe-Sprague Hall to two-bedroom apartments in Center Court Gardens that accommodate four students. When filled to capacity, current facilities meet the housing needs of 25 percent of the total student enrollment.

Application Process. Students applying for admission receive housing applications as part of the admission process. Returning students may request a housing application from the Office of Student Services, room 119, Schweppe-Sprague Hall.

Because on-campus housing is in great demand, the following set of priorities has been adopted by the Office of Student Services for assigning students to available units. Students in category number one receive the highest priority followed by those in category number two, etc.

1. Students who wish to retain their present University housing assignment for the following year.
2. Students who wish to change their present University housing assignment to a different unit for the following year.
3. Returning undergraduate students who would like to move into University housing.
4. Incoming undergraduate students from affiliated colleges.
5. Incoming undergraduate students from nonaffiliated colleges.
6. Incoming graduate and medical students who do not live in, and whose families do not live in, the Chicago metropolitan area.
7. Returning graduate and medical students who live in, or whose families live in, the Chicago metropolitan area.

These priorities will be used as a guide by the Office of Student Services when assigning housing. Students must meet all established deadlines regarding the application process. A returning student living in University housing, for example, who fails to submit a housing application for the succeeding year by the published deadline will not retain his/her number one priority. In addition, other factors such as financial need, room availabilities or unique individual circumstances may be considered as exceptions. Thus, the Office of Student Services reserves the right to make exceptions to these priorities when extenuating circumstances exist.

As already stated, on-campus housing is in great demand. Consequently, to maximize available space the following configurations will be used in the assignment process:

Schweppe-Sprague	One student
Kidston One Bedroom	One student
Kidston One Bedroom	Married couple
Kidston Two Bedroom	Two students
Center Court Gardens	
Studio	One student
One Bedroom	One-two students
Two Bedroom	Two-four students

Notification of acceptance into University housing will be sent to each student assigned to on-campus housing. For students who wish to retain or change their housing assignments for the following year, notification will take place approximately April 15 each year. Entering students must receive an acceptance for admission before any housing notification will be sent. Notification to entering students will begin approximately May 1.

A lease will accompany each letter of acceptance into University housing. The lease must be signed and returned with a security deposit of one month's rent. Failure to return the lease and the security deposit by the specified deadline will result in the loss of the housing assignment. All inquiries regarding housing assignments should be directed to the Office of Student Services.

Rent is payable in equal quarterly installments. Students are billed for rent along with tuition and fees prior to the beginning of each quarter.

Consolidation Policy. In an effort to maximize the number of on-campus housing spaces available to Rush University students, some consolidation of tenants may occur. This consolidation policy will affect only those

students who occupy an apartment by themselves that was originally leased to two or more students. Such a situation can occur when a roommate has left University housing during the course of the academic year.

If consolidation is necessary, students involved will be informed in writing. At that time the student will have the following options: share an apartment with another student in any building who is also in need of a roommate; find a Rush University student roommate of his/her choice; have a roommate assigned from the available applications or pay the full rent of the apartment.

If the fourth option is chosen, the apartment will become a single accommodation only through the end of the current lease. If the student wishes to renew the lease, the student will have the option of remaining in the apartment with the understanding that he/she will receive a roommate or will be given an opportunity to move to another available apartment.

After all apartments have been consolidated, any available apartments will be offered to students desiring housing. If compatible roommates are not available, a unit may be rented as a single accommodation at the full rental rate of the unit only until the end of the lease. At such time it will revert to multiple occupancy. Again, the student will have the option of remaining in the apartment with the understanding that he/she will receive a roommate or will be given an opportunity to move to another available apartment.

Students should address questions concerning the application process, assignment process, or roommate selection to Dr. William Wagner (telephone 312-942-6796). Questions regarding leases and maintenance should be directed to the Office of Property Management (telephone 312-942-6474).



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Registration

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and most classes give a final examination during this time.

The quarter hour is the unit used by the College of Nursing, the College of Health Sciences and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents contact time of one lecture hour, two hours of small group discussion or three laboratory or clinical hours per week.

Course credits are not calculated for Rush Medical College students. However, the number of weeks of clinical experiences appears on the transcript of the academic record.

Registration Process. Each quarter a timetable of classes is published by the Office of the Registrar for the subsequent quarter. Classes are filled on a first-come, first served basis according to the following order of priority: continuing students, new students and unclassified students.

Required Signatures. Registration forms are processed only if the required signatures are obtained. Each student must obtain his/her advisor's signature. Registration for more than 16 credits for graduate nursing students or more than 17 hours for all others requires written permission from the program director. The nature of some course offerings may require the instructor's signature in addition.

Registration for Medical Students. Registration for preclinical studies is done administratively except for electives, including the minicourse series (BHV 473). Registration for clinical studies is done in the Office of Clinical Curriculum.

Confirmation of Registration. Registration is confirmed on student data sheets which include courses in which the student is enrolled, billing, and financial aid information. Closed or cancelled courses are posted in the registrar's office. No message appears on the data sheet if the student did not get all requested courses.

Completion of Registration. Registration is complete only when tuition and other charges for the quarter are paid or satisfactory arrangements for payment are made. Registration for subsequent quarters is denied to student not cleared by the bursar. Tuition is due on the first day of the quarter. (See section on Financial Affairs).

Auditing. Students may sit in lectures without being registered only with the permission of the instructor. No credit is earned and a

notation does not appear on the student's academic transcript.

Late Registration Fee. Effective in August 1991, students in the College of Nursing registering after the posted registration, period prior to the beginning of each quarter, will incur a \$50 late registration fee. This is imposed following initial matriculation in a degree program within the College of Nursing.

Unclassified Students. Persons desiring to enroll in a course may do so on a special *Unclassified Student Registration Form* obtained in the Office of the Registrar. The instructor's approval on the form constitutes approval for registration. An instructor is not obligated to accept any unclassified student in his/her class, and students without appropriate background take courses at their own risk. Payment of tuition is required before the forms are processed. The bursar will charge tuition at the rate applied to graduate students. However, neither instructor approval nor payment assures a place in the class since students in degree programs have priority for enrollment in all courses. Therefore, unclassified student registration forms are processed only during the week immediately prior to the first day of classes. Notification is by mail. If an unclassified student cannot be accommodated in a class, a full refund of tuition will be mailed, usually within two weeks.

A student may accumulate no more than 12 quarter hours of academic credit as an unclassified student. These 12 hours, equivalent to a full-time one quarter course load, may be taken in one quarter or over a period of time. Registration as an unclassified student that results in more than the maximum number of hours (12) will be permitted if the dean (or his/her designate) of the college offering the course(s) has signed the registration form.

Credit earned as an unclassified student will not necessarily apply toward a Rush degree if the unclassified student is subsequently admitted to a degree program.

Pass/No Pass Option. The time table indicates all courses that may be taken pass/no pass. One may registrar to take a course pass/no pass simply by putting an x in the P/N column on the registration form.

A student deciding to take a course pass/no pass after having initially registered should complete a *Pass/No Pass Option Form* available in the Office of the Registrar. This form may require the signature of the appropriate advisor and must be submitted by the second Monday of the quarter. The form may also be used to revert to the letter grade option.

All medical school courses are graded honor (H), pass (P) or fail (F).

Graduate students in nursing may take no more than 20 percent of their total graduate course credits under the pass/no pass option. Therefore, if a nursing student has 55 quarter hours to earn a masters degree, he/she may earn 11 hours pass/no pass; the student who graduates with 125 quarter hours may take 25 hours pass/no pass. Thesis and dissertation hours (NSG 598 and 699), which are graded only pass/no pass, are in addition to the 20 percent limit.

Precandidacy research is graded P/N in The Graduate College. Divisional policies vary on the pass/no pass grading of other courses.

Independent Study. To register for independent study, students complete the form on the back of the registration form. This form identifies the title of the study to be posted on the student's transcript, the preceptor's name and office location and the number of credits for the study. The advisor's signature is required on both the front and back of the registration form.

Nursing students complete an *Independent Study Contract Form*, which is available in the Office of the Registrar. On this form the objectives of the study are defined, a plan to meet those objectives is described, etc. It should be completed and approved by the preceptor, department chairperson and the program director no later than the first day of the quarter in which the independent study is to be taken. The student's preceptor keeps the contract.

Health Systems Management students must register on the back of the registration form and also complete a separate form available in the Health Systems Management office (AF 2).

Identification Card. Each student receives an identification card at matriculation. Each term the card is validated at the completion of registration. Registration is complete once satisfactory arrangements have been made for the payment of tuition and fees.

A valid ID card is needed for identification within the Medical Center complex, for use in the library and bookstore and for admission to some school events. A clip or pouch is provided to display the card.

Lost or stolen identification cards may be replaced at the Office of the Registrar from 2:30 - 4:00 p.m. daily. There is a \$5.00 fee for this service.

Drop/Add. The only way to change course registration is to complete a Drop/Add Form available in the Office of the Registrar. The official date of the drop/add action is the date that the drop/add form is processed by the Office of the Registrar. No course may be dropped after the last day of classes. No withdrawals are allowed during the final examination period. Students must obtain the appropriate advisor's signature before the form will be processed. Forms that do not have an advisor's signature will be returned to the student.

Medical students wishing to change their clinical schedules must contact the Office of Clinical Curriculum at least four weeks before the start of the scheduled clerkship.

Withdrawal from School and Leave of Absence. Students may not merely quit going to classes. A formal withdrawal must be made, and the appropriate signatures obtained on the *Clearance Form* available in the Office of the Registrar. No withdrawals are allowed during the final examination period. Refunds are made only during the limits for refunds. (See Financial Affairs section.) This is also required of those going on leave of absence in addition to any requirement for applying for the leave as stated under specific program policies. This procedure assures that students do not obligate themselves for additional tuition, financial aid, and insurance. Insurance may be continued under certain conditions. Failure to complete the form makes the student ineligible for any refunds and the student incurs insurance charges for the full quarter.

Off-campus Concurrent Enrollment. Under special circumstances students may apply to take courses offered by another college or university as if they were Rush University courses. These courses are taken as integral parts of the student's curriculum, either replacing required Rush courses or fulfilling special career or discipline objectives. Completion of the *Concurrent Enrollment Form* obtained in the Office of the Registrar to authorize payment of tuition at the other institution. Students, often with the help of their advisors, make their own arrangements to take a course at another institution, and they register at Rush for the appropriate hours of credit and pay the Rush tuition rate. Students must provide an official transcript from the other institution, and a grade for the course will be recorded on the Rush transcript.

Grades and Transcripts

Grade Point Average

The grade report and the transcript of the academic record shows a grade point average (GPA) for each quarter in which grade points were earned and adds a cumulative GPA for all work taken at Rush. The GPA is computed by

dividing the number of earned grade points by the number of quarter hours of credit attempted for those courses. When a course is repeated the second grade only is computed in the GPA. No grade points are assigned for work taken on a pass/no pass basis and, therefore, are not computed in the grade point average. Grade point averages are not included for students in Rush Medical College since all courses are taken on an Honors/Pass/Fail system.

Grading System

Grade	Quality	Grade Points
A	Excellent	4
B	Good	3
C	Satisfactory for Undergraduates but may not be acceptable at the graduate level	2
D	Minimal pass for undergraduate and may not be acceptable at the graduate level in the College of Health Sciences. Not used at the graduate level in the College of Nursing, The Graduate College or Health Systems Management	1
F	Failure	0
P	Passing	
N	Not Passing	
H	Honors - Rush Medical College only	
W	Withdrawal prior to midterm	
WP	Withdrawal passing after midterm	
WN/WF	Withdrawal failing after midterm	
K	Credit earned through proficiency examination	
NR	Grade not reported by instructor	
IP	Course is still in progress	
I	Incomplete	
CC	Course continues into the next quarter. Grade received at the end of the series is the grade for the entire course	
XX	Participation in an ungraded course or residency	

Rush Medical College uses honors (H), pass (P), and fail (F)

Grade Report. A quarterly grade report is mailed to each student's local home address as soon as grades have been recorded each term. Grades are usually mailed within five working days of the end of the examination period. Grades neither will be issued over the phone nor given to students who attempt to pick them up in person. A copy of the grade report is given to academic advisors. Grades are never released to parent, legal guardians, or spouses.

The quarterly grade report is the student's copy only, and it should not be accepted by an institution or agency in lieu of an official transcript.

Academic Record. The permanent academic record is the student's official transcript that includes all course work taken at Rush University. External transcripts for medical students reflect the highest grade reported for each course at the time a transcript is requested. The academic record is maintained permanently in the Office of the Registrar.

Transcript Requests. Copies of the academic record may be obtained at no cost to the student or former student. These transcripts are released only with prior written consent of the student. Students may either complete a transcript request form or write the Office of the Registrar, 1743 West Harrison Street, Chicago, Illinois 60612. The letter must include a handwritten signature of the student. Transcripts will not be released if the student has an outstanding financial obligation to the University. Two days should normally be allowed for processing.

Transcript requests by medical students to be used in support of residency applications should be made to the Office of Clinical Curriculum of the medical college rather than to the Office of the Registrar.

Copies issued to students will be stamped in red ink "Issued to Student." All copies bear the signature of the registrar or his/her designate and the seal of Rush-Presbyterian-St. Luke's Medical Center.

Commencement

Commencement Ceremony. Rush University commencement is held annually at the end of the spring quarter. The exact date for commencement is published in the academic calendar appearing in the timetable of classes and in the *Rush University Bulletin*. Students will be notified by the Office of Student Affairs concerning participation in the event. Students are expected to march in commencement exercises.

The Office of the Registrar asks students to specify how they want their names printed on their diplomas and in the commencement program. Students also will be asked to supply a forwarding address where mail can be sent after graduation.

Information regarding degree requirements, deadlines and eligibility to participate may be obtained from program directors. Students whose academic plans change, making them ineligible to participate in the June ceremony, will be deleted from the commencement list for that academic year. However, they are then eligible to participate the following June should they successfully meet degree requirements. During the ceremony, diplomas are given to students who have completed their programs, discharged their financial obligations to the Medical Center, and returned all library books and other University property. Students will be notified of all outstanding obligations, and the Office of the Registrar will encumber the diplomas and transcripts of students until these obligations are met.

Awarding of Degrees. Rush University degrees are granted on the Saturday of the quarter in which all degree requirements are completed. When degree requirements are met during the break following a quarter, the degree will be dated the end of the subsequent quarter. Degree requirements include all curricular and other program prerequisites, such as required courses, residency, minimum grade point average, cumulative quarter hours, etc. (See program descriptions for details). Before a degree may be granted, all grades of incomplete (I) must convert to final grades.

Outstanding financial and other Medical Center obligations have no effect on the awarding of degrees; however, the diploma, student transcript and other notification of a degree awarded will be withheld until these Medical Center obligations have been met.

Graduation Requirements. See program descriptions for specific requirements. Each candidate for the degree of D.N.Sc., Ph.D., or

M.S. with thesis is required to submit a degree approval form to the Office of the Registrar after completing all academic requirements including dissertation defense and submission of the dissertation to the library for microfilming. Doctoral candidates may not participate in the commencement ceremony before submitting this form.

Dual Degree. (Undergraduates in nursing and medical technology) Some affiliated colleges award a bachelor's degree to students who have transferred to Rush University. Students receive the degree after they have met degree requirements of the affiliated college. Often those requirements have been modified slightly to accommodate the unique nature of the affiliated-Rush program. Questions regarding degree requirements and eligibility should be directed to the registrar of the affiliated college.

To receive a degree from the affiliated college, each student must authorize the registrar of Rush University to send an official transcript of Rush course work to the affiliated college.

Graduation Honors. Candidates for the bachelor of science degree who have demonstrated academic excellence are honored at commencement by the Rush University faculty. Those earning a 3.4 or better grade point average based on six quarters at Rush are awarded the bachelor of science cum laude; those with 3.6 or better, magna cum laude; those with 3.8 or better, summa cum laude. Only Rush University course work is calculated into the grade point average. Honors appear on the student's diploma and are announced during the commencement ceremony.

Prizes and Awards. Most of the following prizes and awards are given annually at college/departmental ceremonies in June immediately before the Rush University Commencement.

The Aesculapius Award

This award is given to the outstanding resident-physician as voted by the medical students.

The American Medical Women's Association Scholarship and Achievement Citations

These citations honor women in the graduating class of Rush Medical College for outstanding scholarship and achievement.

The Arthur Dean Bevan Award

This award is given to the graduating medical student who has demonstrated clinical and academic achievement in surgery.

Bernard R. Pennington Memorial Award

This award is given for excellence in pastoral service as selected by the faculty in the Department of Religion Health, and Human Values.

The Cardiology Prize

Given to the graduating medical student who has had the best performance in a cardiology elective course.

The Ciba-Geigy Award

This award is given for outstanding community service by a sophomore medical student.

The Clinical Award

Given to the prelicensure nursing students who has consistently demonstrated outstanding clinical performance.

College of Health Sciences Dean's Award

for outstanding academic achievement.

College of Health Sciences Faculty Award

This award is given to the outstanding teacher on the faculty as selected by the students.

The College of Nursing Dean's Award

This award is given for superior academic achievement.

College of Nursing Faculty Award

This award is given to the outstanding faculty member as voted by the senior students.

The Communication Disorders and Sciences Award

This award is given to the outstanding graduate student as selected by the faculty.

Community Service Award

This award is given to the undergraduate nursing student who has made significant community service contributions.

The Daniel Brainard Award

This award is given to the outstanding teacher in the basic sciences as voted by the medical students.

The Dayton Ballis Humanities Fellowship

This award is given to a Rush Medical College student for academic excellence in the humanities related to medicine.

The Department of Family Practice Award

This award is given to the graduating student who has demonstrated academic excellence in family medicine.

Department of Health Systems Management Award

This award is given to the outstanding graduate student as selected by the faculty.

The Department of Pediatrics Award

This award is given to the graduating student who has demonstrated outstanding achievement in pediatrics.

The Dianne Nora Clinical Excellence Award

This award is presented to the master's student who has demonstrated outstanding performance in clinical nursing courses.

The E. Virginia Pinney Award

This award, endowed in 1985, is given to the graduate student who has demonstrated outstanding leadership potential in the profession of dietetics.

The Excellence in Gerontological Nursing Award

This award is presented to the undergraduate student who has demonstrated excellence in gerontological nursing.

The GATE Pharmaceuticals' Outstanding Student Award

Awarded to the graduating medical student who has excelled in the study of obstetrics and gynecology as demonstrated by excellence in scholarship and concern for patients.

Golden Lamp Society Award

This award is presented to the outstanding doctoral nursing student for research and scholarship.

The Graduate College Award

This award is given for excellence in research among students enrolled in The Graduate College.

The Graduate College Faculty Award

This award is given to the outstanding teacher on the faculty as selected by the students.

The Henry M. Lyman Memorial Prize

Endowed in 1908, is given each year to a junior medical student for outstanding work as voted by the faculty.

The James B. Herrick Internal Medicine Award
This award is given to the graduating student who has demonstrated outstanding achievement in internal medicine.

The Janet M. Glasgow Memorial Award of the American Medical Women's Association
This award is given to the female medical student who graduates first in the class.

The John Giles Prize
This award is given for outstanding undergraduate work in epidemiology and public health as selected by the Department of Preventive Medicine.

The Kellogg Scholarship Award
This award is given to Doctoral Nursing Student for superior academic achievement.

The Lemmon Company Student Award
This award is given to the graduating medical student who has excelled in the study of obstetrics and gynecology as demonstrated by excellence in scholarship and concern for patients.

The Luther Christman Award from the Nursing Alumni Association
This award is given to the prelicensure nursing student moving directly into post-baccalaureate studies who has demonstrated outstanding academic and clinical performance and leadership.

The Nathan M. Freer Prize
This prize, endowed in 1892, is given to the outstanding senior medical student as voted by the faculty.

The Nephrology Award from the Muehrcke Family Foundation
This award is given to the graduating student who has demonstrated outstanding achievement in the field of nephrology.

The Occupational Therapy Faculty Award
This award is given to the outstanding graduate student who has demonstrated a balance of scholarship, humanitarianism, integrity and professional commitment as selected by the faculty.

The Sir William Osler Pathology Prize
This prize is given to the medical student who has demonstrated outstanding achievement in diagnostic or experimental pathology.

The Paul E. Carson Award
This award is given to the student who has demonstrated excellence in pharmacology.

The David Peck Prize
This prize is awarded to the student who has made the greatest contribution to the Student National Medical Association.

The Phoenix Award
This award is given to the outstanding physician-teacher as voted by the medical students.

Professional Service Award
This award is given to a nursing student for significant contributions in the areas of community service and/or the professional nursing community.

The Ruth Schmidt Award
This award is given to the registered nurse completing the Baccalaureate Degree who has demonstrated potential for significant contributions to the profession of nursing.

Rush-Presbyterian-St. Luke's Nurses Alumni Association Award
This award is given to the outstanding graduating nursing student.

The Sandoz Award
This award is given to the graduating student who has demonstrated outstanding achievement in the field of psychiatry.

Special Project Award
This award is given to the undergraduate nursing student who has demonstrated outstanding creative and original work as evidenced by a course project.

The Samuel G. Taylor III Prize
This award is given to the graduating student who has demonstrated excellent achievement in medical oncology.

The Upjohn Achievement Award
This award is given to the senior medical student with the best research project.

Writing Award
This award is given to the undergraduate nursing student who has demonstrated outstanding scholarly and/or creative writing.

Student Records

Name and Address Change. The Office of the Registrar maintains the current official listing of student names and addresses for Rush University. It is the responsibility of the student to keep the Office of the Registrar informed of changes in this information. A name/address change form is available in the Office of the Registrar. A copy of this form is automatically distributed to the bursar, Office of Student Financial Aid, Library of Rush University, and the Office of Student Affairs.

Directory Information Policy. Certain information classified by Rush University as directory information may be disclosed to the public. These are items of directory information: student's full name, local address and phone number, date and place of birth, home town, major field of study, year in school or class, participation in officially recognized activities, dates of attendance, degrees and awards received, previous educational institutions attended, previous majors, previous degrees and dates earned.

Each fall quarter the Rush University Student Address Book is published for student, faculty, and staff use. It contains student names, local addresses and phone numbers, colleges and classes. At the time of commencement exercises this information may be released in public announcements: student's full name, degree and major, previous institution and degree(s) and year(s) earned, and home town.

Students may restrict the release of any item of information considered as directory information on a form provided in the Office of the Registrar, Schweppe-Sprague Hall, 101, by Friday of the first week of classes in each quarter.

Student Records Policy. The Family Educational Rights and Privacy Act of 1974 protects the privacy of current and former students enrolled in most educational institutions. Rush University has seven official student records. A student or former student may inspect and review these records after making an appointment with the appropriate office.

The records and their locations are as follows:

- official academic record: Transcript--Office of the Registrar, 101 Schweppe-Sprague Hall.
- registrar's folder: Contains admission application, transcripts from other schools, registration information--Office of the Registrar, 1 Schweppe-Sprague Hall.
- dean's folder: (Rush Medical College) A complete academic file that contains grade reports, written evaluations of clinical work, curricular flow charts, copies of correspondence and of all material in the Registrar's folder--Office of Clinical Curriculum, 5 Academic Facility; (College of Nursing) Contains written evaluations of clinical work, curricular flow charts, grade reports--Office of the Program Directors, 14 Schweppe-Sprague Hall.
- department folder: Contains written evaluation of clinical work, curricular flow charts, grade report copies--Office of the Program Directors, clinical nutrition, medical physics, medical technology, occupational therapy, and speech and hearing sciences--14 Schweppe-Sprague Hall; religion, health and human values--7 Schweppe-Sprague Hall; health systems management--2 Academic Facility; The Graduate College Admissions Office, 2 Kidston Building.
- financial affairs folder--Records showing all billing and payments, notes, and correspondence dealing with a student's finances--Office of Student Financial Affairs, 1 Schweppe-Sprague Hall.
- financial aid folder: All information concerning financial aid for the student--Office of Student Financial Aid, 1 Schweppe-Sprague Hall.
- placement recommendations: Contains letters of recommendation filed by faculty members at the request of the student--Office of Student Affairs, 1 Schweppe-Sprague.

Students may obtain copies of transcripts from the institution that holds the original records. Other portions of their records will be copied upon request. The request must be in writing and signed, must specifically identify the record desired and include the student's major, year, date of birth, and social security number. There is no charge for copies of the student transcript. Other reproductions cost 50 cents per page. The University honors requests providing there is no outstanding obligation to the Medical Center. Students within commuting distance may be asked to review the desired data in person.

Students may request that the University amend information in their records they believe to be inaccurate, misleading, or in violation of their privacy. If the University refuses to amend a

record, the student may request a hearing to challenge that decision. A hearing will be granted. Students may place in their educational records comments upon information in the records and/or state their grievances with a decision not to amend the record.

Administrators who maintain the records adhere to a policy of limited access to administrators and faculty of Rush University who have a need for information in order for their offices to function, to determine academic progress, or to designate award recipients. Other persons or organizations given access are those responsible for accrediting the institution, for providing the student with financial aid, for complying with a judicial court order, and for protecting the health or safety of students during an emergency.

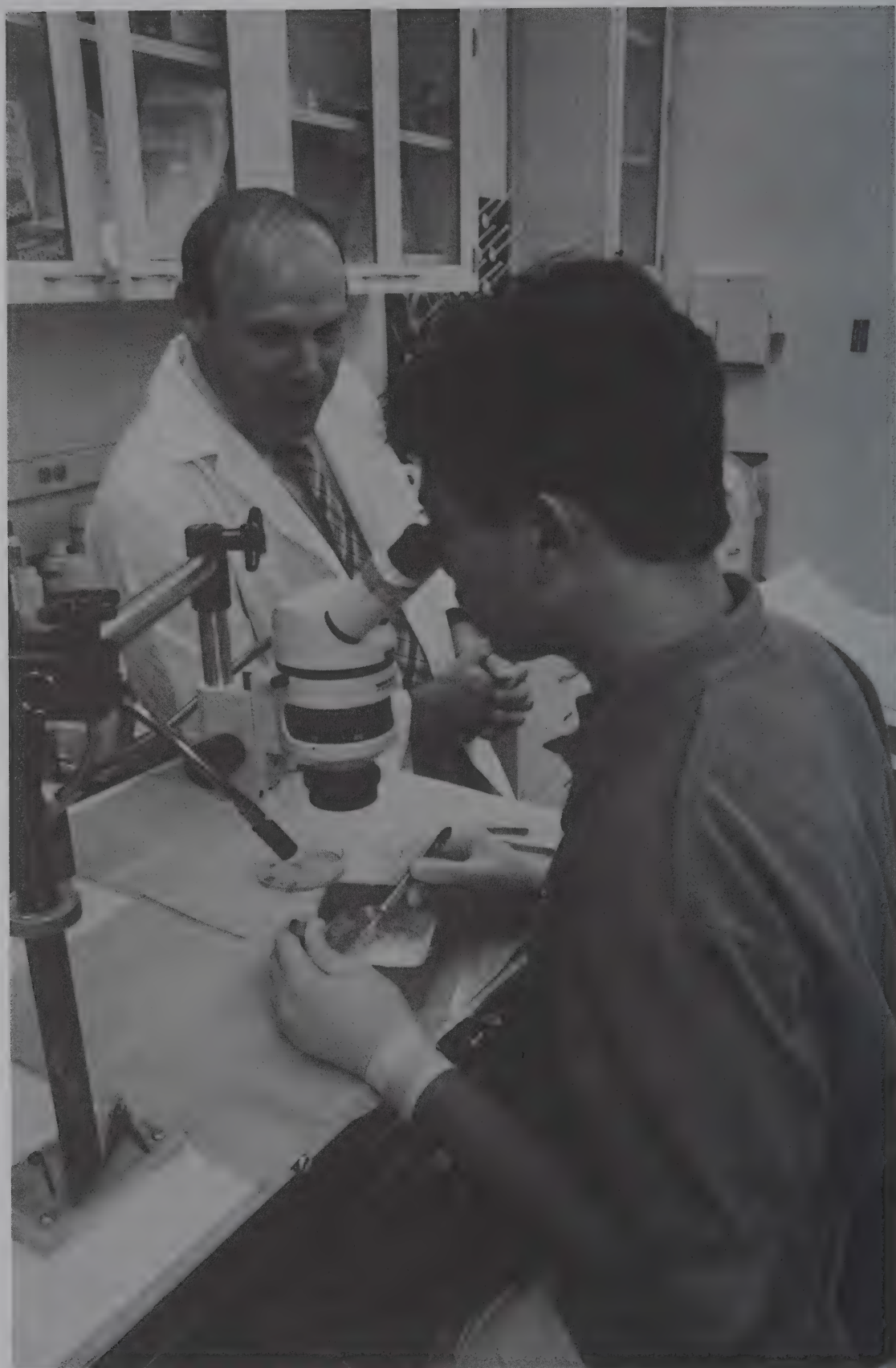
Disclosure of any student's record to others not listed in these policies must have prior written consent of the student. Requests for information and letters of consent are kept with the records.

Human Investigation

Any project or study involving human subjects must have approval of the Medical Center Committee on Human Investigation. Studies in the community as well as within the Medical Center must have this approval. The Office of Research Administration handles all requests and has established the protocol for proper investigative procedures.

Institutional Animal Care and Use Committee

All investigators and teachers that use animals in scientific projects and in classes must submit their plans to the Institutional Animal Care and Use Committee (IACUC) for approval prior to carrying out the project or program. Members of the committee are appointed by the President and include representation from the community and from the student body. The director of the Comparative Research Center coordinates the work of the IACUC.



FINANCIAL AFFAIRS

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Tuition and Fees

Tuition. Tuition and fees for the 1991-92 academic year follow. For estimates of other expenses, see the *Rush University Student Financial Aid Handbook*.

Tuition	Full Time Per Quarter	Part Time (1-11 cr) Per Q.H
College of Nursing Undergraduate	\$2,600	\$220
Col. of Hlth. Sci. Medical Technology	\$2,500	\$210
Perfusion Technology	\$3,000	\$260
All Graduate Students Unclassified	\$2,950	\$255
Rush Medical College Years 1 & 2	\$6,192	
Years 3 & 4	\$4,644	

Medical students are charged for a maximum of four years of full time tuition. Students needing additional quarters to complete degree requirements will be charged the enrollment fee (see fees below). Although it may be possible for a medical student to complete all degree requirements prior to the spring quarter of his/her fourth year the spring tuition charge must be paid for a total of four years of tuition.

Fees. The following fees may be levied:

Enrollment Fee. Students in special programs are assessed \$200 per academic quarter. Students enrolled in a noncredit residency or academic enrichment program prior to receipt of their degree, must be registered for such a course and pay the enrollment fee in order to retain their student status. Any student having an outstanding incomplete after all other required coursework for the degree must enroll for no credit and pay the enrollment fee until the grade is satisfied. Single hospitalization insurance is not covered in this fee. Single coverage under ANCHOR is provided at no extra charge. (See Student Health Services Program for further information.)

Late Registration Fee. Effective August 1991, students in the College of Nursing registering after the posted registration period each quarter will incur a \$50 late registration fee. This is imposed after initial matriculation in a degree program with the College of Nursing.

Insurance. All students must have hospitalization coverage. (See Student Health Services Program for further information.)

Application Fee. A nonrefundable application fee of \$25 is required of all applicants to offset the expense of processing the application, evaluating credentials, and maintaining a library of evaluation aids. This fee does not apply to any other charges such as tuition.

Enrollment Deposit. A \$150 enrollment deposit is required of health systems management students and \$100 is required for medical students prior to matriculation. All nursing students (including affiliated students) must deposit \$75 prior to matriculation. Other health sciences students submit a \$50 deposit. This guarantees students a place in the entering class. This deposit is nonrefundable and applies toward payment of the first quarter tuition.

Microscope Rental. Microscopes are available to students for a rental fee. Students enrolled in medical technology, microbiology, anatomy, and pathology courses must have microscopes. Rental fees will be included in the fall quarter bills for first-year medical students and third year medical technology student. Students will be billed once for the entire rental period. Students taking anatomy, microbiology, and/or pathology will pay \$115 per year or \$230 for the entire two-year period (medical students). Junior-year medical technology students will pay \$115 for one year. Any student who withdraws from the University or obtains a microscope from another source should notify the coordinator of General Educational Resources who will authorize the bursar to prorate monthly the rental fee. (See General Educational Resources in Campus Section.)

Returned Checks. If a student gives the University a check that is returned by the bank upon which it was drawn, marked "not sufficient funds", "payment stopped", or "account closed", a \$10 charge will be assessed for each occurrence.

Payment for Tuition, Fees, and On-campus Housing

The following statement represents the payment policy for all Rush University students.

Payment for tuition, fees and on-campus housing or satisfactory arrangements for payment must be made with the Office of Student Financial Affairs before registration is complete. Students may not attend classes until after registration is complete. Any exception to this policy must be approved in writing by the vice president for academic resources.

Students have the responsibility to complete one or a combination of the following courses of action on or before the first day of classes each quarter:

1. Pay total tuition, fees, and on-campus housing charges for the quarter.
2. Complete a Deferred Payment Plan Contract. This plan requires that one-third tuition, all fees, and a \$15 service charge be paid on or before the first week of class. Additional payments of one-third are due on the fourth and eighth Mondays of the quarter. Contract forms are available in the Office of Student Financial Affairs.
3. Use the pending financial aid payment option. All students who have financial aid pending will be allowed to defer payment of that portion of tuition and fees that is covered by the anticipated aid. In order to use this option, students must have taken all steps required of them to apply for the aid (e.g., the application for a guaranteed student loan program must have been completed and submitted to the financial aid office). In order to avoid a late fee charge, students must make arrangements for payments of that portion of tuition and fees not covered with pending aid by completing steps one or two above.

Those students who have not made satisfactory arrangements will be given notice by mail during the third week of classes that they are delinquent in their financial obligations to the University. The notification will inform the students that they have until Friday of the fourth week of classes to satisfy all such financial obligations. On Monday of the fifth week of classes, those students who have not made satisfactory arrangements will be charged a \$100 late payment fee.

Students who choose the deferred payment plan contract and who fail to make a payment on the specified due dates will have until Friday of that week to satisfy their financial obligations without penalty; failure to do so will result in a \$50 late payment fee for each payment date missed. No notification is mailed since the rules are included in the signed contract.

At the end of the quarter, those students who still have outstanding balances with the University that are not covered by pending financial aid will receive neither grades nor transcripts; be dismissed from on-campus student housing; lose all University privileges and have their registration cancelled for the following quarter.

Third Party Billing

All unpaid accounts are billed to the student monthly. If the student will not be personally paying the account, it is his/her responsibility for forwarding any bills to the appropriate party as soon as possible. It is recommended that a student in this situation authorize the bursar to bill their parents, spouse, or other agent directly. *Third Party Billing* forms for this purpose are available in the Office of Student Financial Affairs, Schweppe-Sprague Hall room 101.

Refund Policy

Official withdrawal or dismissal from a course or from the University entitles a student to a refund of tuition according to the following schedule. No fees are refundable.

A student may receive a 100 percent refund if withdrawal occurs during the first calendar week in which the quarter begins. Otherwise, refunds will be made as follows:

Second week	80 percent refund
Third week	60 percent refund
Fourth week	40 percent refund
Fifth week	20 percent refund
After fifth week	no refund

Refunds will be shown as credits on the student's account unless the student requests a check for the amount of refund, less any amount still owed for other charges. Normally, checks are processed within two weeks. Students are not notified when the check is available in the Office of Student Financial Affairs.

Student Health Services Program

The University's health services program is designed to promote the health and well being of its student population and to protect the individual student from undue financial hardships that a medical emergency could cause. To accomplish this the University offers membership in two separate group insurance policies which, when combined, fulfill its goal of student health maintenance and protection. Unclassified students do not qualify for membership in Rush University's insurance programs.

The first is a group hospitalization policy underwritten by Blue Cross covering most of the hospital charges related to an inpatient stay or an emergency room visit. Applications are available at the Office of Student Financial Affairs and at fall registration when all students are required to provide proof of hospitalization coverage or sign up for Rush's Blue Cross plan. As with all group policies, there is an annual open enrollment period when a subscriber may add

dependents or make changes. Rush's Blue Cross enrollment occurs during the first two weeks of fall quarter, and the only other time a dependent may be added is within 30 days of the date of marriage or the birth of a child. A booklet available at the student financial affairs office explains in more detail the exact coverage and exclusions. The student financial affairs office is located in 101 Schweppe-Sprague Hall.

Although membership in Rush's Blue Cross plan is not mandatory, it is a requirement that all students carry some hospitalization insurance from their date of matriculation until graduation. Upon entering Rush many students are covered by a family policy; however, all family policies have maximum age limits for children, normally 19 to 23 years of age. As a result, even though a student may be adequately covered upon entering Rush, at some date that coverage will stop. The University has no way of knowing when this will occur; consequently it is the student's responsibility to notify the student financial affairs office prior to that critical birthday so that there will be no lapse in coverage. This is extremely important, as all students must have hospitalization insurance. This is why, during fall registration, the financial affairs office requires all students to provide proof of alternative hospitalization coverage or join Rush's Blue Cross group plan. Proof of alternative hospitalization consists of presenting a current hospitalization policy or member identification cards.

If during the school year, a student wants to drop his/her Rush Blue Cross coverage, he/she must first show proof of similar coverage elsewhere before the University's coverage will be dropped either at the beginning or end of the month.

The second group plan available at Rush is the ANCHOR Health Maintenance Organization. ANCHOR offers outpatient primary care aimed at the prevention of illness, maintenance of good health, and early detection and treatment of disease. When illness does occur, comprehensive care is provided through ANCHOR's group of primary care physicians and specialists. ANCHOR's benefits cover most physician and related fees including up to 20 outpatient mental health visits per calendar year for short-term evaluation and crisis intervention. Single membership in ANCHOR is available at no charge for all degree-seeking Rush students who

are registered in a program of study (i.e., being charged tuition or enrollment fee). Coverage does not begin until an ANCHOR application is properly filled out. As with Blue Cross, fall quarter registration is the annual ANCHOR enrollment time at which students can add a spouse or child to their policy. The only other time additions to one's coverage can be made is within 30 days of the date of marriage or birth of a child.

Currently, ANCHOR has 18 offices throughout the Chicago area with Saturday hours and some evening hours. When a student first joins, he/she selects a personal physician from among the ANCHOR staff, as well as the office location he/she thinks would be most convenient.

Normally, the central office located in the 1700 Van Buren building on the main campus will be most convenient. To aid students in their selection of a physician, a current list of participating physicians is available at the student financial affairs office or in any of the nine ANCHOR offices. As with Blue Cross, a booklet explaining in more detail the coverages and services available through ANCHOR is available from the Office of Student Financial Affairs.

Students should be aware that ANCHOR coverage does not include a hospitalization plan.

The following tables reflect 1990-91 Blue Cross rates and ANCHOR rates. Rates are subject to change.

Blue Cross

<u>Coverage</u>	<u>Per Quarter (Including Summer)</u>
Single	\$116
Family	\$430

Rush-ANCHOR

<u>Coverage Per Quarter</u>	<u>Enrolled</u>	<u>Not Enrolled</u>
Single	\$0	\$133
Couple	\$132	\$265
Family	\$239	\$372

Returning students who were on Rush's insurance plans in the prior quarter will be dropped if they are not registered by the second week of classes. It is the student's responsibility to reapply for the insurance once he/she is registered.

FINANCIAL AID

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Financial Assistance

The financial aid programs at Rush University are provided to assist students who cannot otherwise afford to pay the full cost of education through their personal or family resources.

In general, financial need is the basic criterion for the awarding of funds by Rush University. Accordingly, students and their families will be expected to contribute toward educational expenses to the fullest extent possible. The level of the expected contributions is determined by using a standard set of criteria to analyze financial information provided by the students and their families.

Detailed information on financial aid and the application procedure is provided in the Rush University Student Financial Aid Handbook which is available in the Office of Student Financial Aid. The staff is available to consult with students and parents on all matters regarding the financing of a Rush University education. Students and parents are welcomed and encouraged to make use of these services.

Satisfactory Academic Progress

In order to receive financial assistance from federal Title IV aid programs (Stafford Student Loan, Supplemental Educational Opportunity Grant, and College Work Study), the student must be making satisfactory academic progress. This federal requirement is contained in section 497(e) of the Higher Education Act of 1965, as amended, and is meant to ensure that only those students who meet progress standards toward their degree objectives continue to receive federal financial assistance.

Rush University's policy regarding satisfactory academic progress follows. This policy is distinct from the academic policies of each program published elsewhere in this bulletin.

The maximum length of time for a Rush University student to complete degree requirements will be the length of time normally required for a student continuously enrolled on a

half-time basis to complete a specific program. Thus, students would not be eligible for federal assistance if enrolled for more than four years in a program that is normally completed in two years. Likewise, students would lose financial aid eligibility if enrolled for more than eight years in a program normally completed in four years. Students attending Rush University on a part-time basis must complete a minimum number of hours each year to determine eligibility for continued federal assistance. Further information on eligibility is available in the Office of Student Financial Aid.

Students who are denied financial assistance due to failure to make satisfactory academic progress may appeal to the director of their program. The director may reinstate the student's satisfactory academic standing by providing to the Office of Student Financial Aid a written statement explaining how the student will be making progress toward the degree.

Financial Aid Awards

After evaluating the personal and family resources available to the student and taking into consideration awards from external sources, the Office of Student Financial Aid will award funds under the control of the University to students who have remaining unmet need. In varying quantities, a financial aid award may include scholarships/grants, loans, and employment. In order to distribute the available funds in the most equitable manner, the Office of Student Financial Aid establishes a formula that designates the sequence in which funds are awarded to students and the maximum amount awarded under each program. The formula provides for a certain amount of loans and sometimes employment, before students are given consideration for scholarships. These formulas are applied consistently during any given year among all students at a given class level in a given college, as long as funds are available. Due to differences in the availability of funds from year to year and changes in eligibility requirements, the formulas are adjusted annually.

Institutional Scholarship and Loan Funds

Listed below are the organizations and named endowments that provide scholarship assistance to Rush University students.

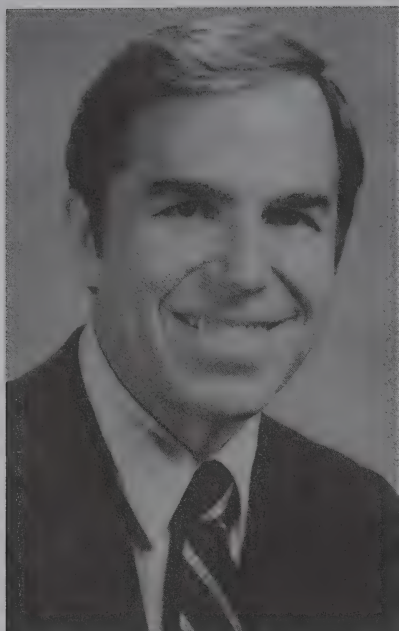
Rush-Presbyterian-St. Luke's Medical Center
Nurses Alumni Association
Orpheus William Barlow, M.D.
Broda O. Barnes, M.D.
Alexander Brunschwig, M.D.
Carlson-Luckhart
Catharine and R. Winfield Ellis-Philip N. Jones
Faculty Guild
Clark W. Finnerud, M.D.
Golden Lamp Society
Eunice Goebel Greeley
Jules and Eleanor Green
Florence D. Hagenah
Independence Foundation
Drs. Jones/Thompson/Ramsey/Kehoe
Philip N. Jones, M.D.
George M. Katzman, M.D.
John L. and Helen Kellogg Foundation
Earl Leimbacher, M.D.
Foster G. McGaw
Muehrcke Family Foundation
Joseph and Wendy Olk Scholarship
Pedro Poma, M.D. Scholarship
Robert Ryan, Jr., M.D.
Elizabeth Douglas Shorey
Emily Birnie Smith
Charles H. Solomon, M.D.
C. M. Swale
Homer Thomas Trust
A. Thompson, M.D. - M. Friedman
Endowed Scholarship
Washington Square Foundation
Rush-Presbyterian-St. Luke's Medical
Center Woman's Board

In addition, Rush University has loan funds available through resources provided by various donors and named loan programs.

Abbott Laboratories
Carl O. Almquist, M.D.
Aileen S. Andrew Foundation
Irving E. Beneveniste
M. Irene Cavanaugh
Charity Hospital Association
Henry H. Everett, M.D.
Donald W. Fergusson
Fishkin Memorial Loan
George Guibor, M.D.
Illinois State Medical Society
John Jacques, M.D.,
and Lawrence Jacques, M.D.
Ruth E. Johnsen Memorial Fund
Krehbiel Medical Student Loan
Grace M. Marshall Educational Foundation
Rush-Presbyterian-St. Luke's Medical
Center Medical Staff
Dr. David Monash
Joseph J. Muenster, M.D.
Anne M. and Paul J. Patchen, M.D., Loan
Frederick Henry Prince
Henry Russe/Alumni Assistance Fund
Heyworth and Catherine Sanford
Rev. Canon Savage Memorial Loan
Simon M. Shubitz, M.D.
Searle Scholars Program
Procto C. Waldo
Jane Wheeler Warren
Vivian Weil
Rush-Presbyterian-St. Luke's Medical
Center Woman's Board



RUSH MEDICAL COLLEGE



"Medical education at Rush fosters inquiry, facilitates the acquisition of knowledge, builds lifelong habits of learning, and recognizes the unique qualities of physician and patient as essential to the process of compassionate and effective care."

*Roger C. Bone, M.D., Acting Dean
Rush Medical College
Interim Vice President,
Medical Affairs*

Rush Medical College

Philosophy

The process of becoming a physician is unique for each student who enters Rush. Each brings to his/her medical school experience a distinct educational, psychological and social background. As students define career goals, each develops personal ways of coping with the demands imposed by the physician's role. The Rush Medical College curriculum encourages pursuit of individual interests by emphasizing a solid foundation in the basic sciences and by offering a wide range of elective opportunities in the Medical Center and in a network of affiliated and associated hospitals. Throughout the program, students are encouraged to develop habits of self-education and enthusiasm for the lifelong study of medicine according to specific interests and objectives. Upon matriculation, students are assigned academic advisors whose primary responsibilities are to provide guidance and serve as resources for students as they define professional goals, select courses, and deal with a variety of issues during their progress through medical school.

Long after students have taken their last medical school examinations, the sense of responsibility for the welfare of their patients remains the most important stimulus to maintaining the highest level of professional performance. The Rush faculty seeks to provide educational opportunities and to create an environment that will foster the ability to meet these responsibilities with competence and compassion.

Admission Requirements

Selection Process. Rush Medical College is strongly committed to the selection of individuals who will become vital members of the medical community as students, practitioners, educators, and researchers. Throughout the curriculum, emphasis is placed on the preparation of physicians who will function chiefly as medical practitioners and who will be committed to the delivery of quality health care to a variety of populations, including those that are now underserved.

Because Rush seeks to train physicians who will be committed to meeting society's health care needs, the Committee on Admissions seeks excellence in academic achievement and in noncognitive factors such as character, goals, personality, accomplishments, and experience.

High scholastic achievement is only a partial qualification for acceptance. The Committee on Admissions looks for individuals who exhibit social and intellectual maturity, personal integrity, motivation and concern. Rush also has technical standards for admission (available on request). Strong preference for admission is given to residents of Illinois.

Admission to Rush Medical College depends upon satisfactory completion of a minimum of 90 semester hours (135 quarter hours) of undergraduate study before matriculation. Applicants should also sit for the revised Medical College Admission Test (MCAT), which was given for the first time in April, 1991.

Rush requires all entering students to have successfully completed at least eight semester hours of physics; eight semester hours of biology, with emphasis in zoology; eight semester hours of inorganic chemistry; and eight semester hours of organic chemistry. In lieu of eight semester hours of organic chemistry, students may take four semester hours of organic chemistry and four semester hours of biochemistry. Survey courses in the premedical sciences will not fulfill these requirements. For students in special programs, exceptions to these requirements may be made on an individual basis. Courses in mathematics, social sciences, and English are strongly recommended. The committee suggests that comprehensive courses be selected that include study in the following areas: biology - molecular, cellular, developmental, and population; inorganic chemistry - properties of the elements, states of matter, chemical reaction, and aqueous solutions; organic chemistry - stereochemistry, covalent bonding, hydrocarbons, and organic compounds; physics - mechanics, electricity, wave characteristics, thermodynamics, nuclear structure, and optics.

Because the required courses provide the foundation upon which modern biological and medical sciences are built, the committee gives special attention to competence in these areas. The committee requires that all of the course work submitted in fulfillment of specific admissions requirements must be evaluated on the basis of a traditional grading system. Such a system must employ a range of numbers or letters to indicate the comparative level of performance. If the applicant has received a grade of pass/credit for any courses on the required list, he/she must have the instructor

supply, in writing, a statement evaluating the student's performance in that course. Applicants are advised to pursue subjects beyond the stated minimums if they have not done excellent work in the required courses.

Applicants who will have successfully completed three years of college consisting of a minimum of 90 semester hours or 135 quarter hours, who have no baccalaureate degree but otherwise meet the requirements, will be considered.

Concurrent M.D./Ph.D. Program

Rush University offers students the opportunity for studies that lead to both M.D. and Ph.D. degrees. These programs are particularly suited for students who aspire to careers in academic medicine and research. They enable students to obtain intensive training in specialized areas of the medical sciences while completing their medical studies.

The curricula for students in a combined M.D./Ph.D. program vary widely depending on the individual's previous education, scope of scientific study, and personal interests. Students in concurrent programs must meet the full conditions and requirements of The Graduate College and Rush Medical College. However, course work leading to one degree may be acceptable as partial credit toward the formal requirements of the other degree. A properly coordinated program may afford a significant economy of time in completing studies toward both M.D. and Ph.D. degrees.

A student who enters Rush University with concurrent enrollment in a graduate program and the medical college will typically complete two years of basic science components of the medical college curriculum before becoming fully involved with requirements of the graduate program. Upon completion of the requirements for the Ph.D. degree, the student will return for the clinical portion of the medical program. Alternatives to this schedule are possible to enable students to develop programs that will most effectively satisfy their career objectives.

Ph.D. programs are offered in The Graduate College of Rush University in the following areas: anatomical sciences, biochemistry, immunology, medical physics, pharmacology, and physiology.

Curriculum

Organization. The four-year Rush curriculum provides an appropriate background for individuals with a diversity of professional career goals. The curriculum is based on establishing a solid foundation in the basic sciences and clinical medicine through a core of required preclinical

and clinical courses. In addition, there is ample elective time for students to pursue individual interests.

First Year--Traditional Curriculum. The primary objective of the first year is to provide students with exposure to the vocabulary and the fundamental concepts upon which the clinical sciences are based. The first year is comprised of three quarters of basic science material organized by discipline, that emphasize the structure, function, and behavior of the normal person. The following courses have been designated for each of the three quarters of the first year at the Medical Center.

First Year Traditional Curriculum

Fall Courses		Hours
ANA 471	Human Anatomy I	111
ANA 451	Histology	83
BCH 471	Biochemistry I	67
PHY 451	Physiology I	74
		335
Winter courses		
ANA 472	Human Anatomy II	86
BHV 451	Fund. of Behavior (includes 2 minicourses)	40
BCH 472	Biochemistry II	52
PHY 452	Physiology II	58
		236
Spring courses		
BHV 453	Behav'r in the Life Cycle (includes 1 minicourse)	34
IMM 501	Immunology	52
MIC 451	Microbiology Concepts	58
NEU 451	Neurobiology	82
PVM 452	Prev Med I: Epid./Biostat.	12
PVM 453	Prev Med II: Comm. Hlth.	18
		256
Total Hours in First Year		827

Second Year--Traditional Curriculum. During the second year, students are concerned with the study of the causes and effects of disease and with therapeutics. Students initiate their work with patients in programs that emphasize interviewing, history taking, and the physical examination.

Second Year Traditional Curriculum

Fall Courses		Hours
CCS 501	Clinical Concepts & Skills	36
MED 501	Clin. Pathophysiology I	61
PHR 501	Medical Pharmacology I	57
PSY 501	Intro. to Psychopathology	33
PTH 501	Pathology I	127
PVM 503	Prev.Med III: Soc. Issues	16
		<u>330</u>
Winter courses		
BHV 543	Observation & Communication	18
CCS 502	Clinical Concepts & Skills	73
MED 502	Clin. Pathophysiology II	73
PHR 502	Medical Pharmacology II	35
PTH 502	Pathology I	65
PVM 504	Prv Med IV: Stdy Groups	8
		<u>272</u>
Spring courses		
CCS 503	Clinical Concepts & Skills	31
MED 503	Clin.I Pathophysiology II	39
PHR 503	Medical Pharmacology II	21
PTH 503	Pathology I	60
		<u>151</u>
Total Hours in Second Year		753

Alternative Curriculum for the First and Second Years. Rush Medical College has established an innovative preclinical program for approximately one fifth of each entering class. This alternative curriculum provides beginning medical students more experience with clinical problems, emphasizes personal responsibility for learning and fosters the development of interpersonal skills. The program involves individual and group assignments.

The content for the two-year program is equivalent to that offered in the traditional curriculum, but the learning format is quite different. Each student is provided with specially designed "learning guidebooks" for each unit in the curriculum. The guidebooks will outline the basic science content to be learned, illustrate relevant problem-solving approaches and contain appropriate reference material and learning exercises.

Students are organized into study groups with six students in each group. Each group will meet formally twice a week for half a day with specially trained clinicians who will facilitate student analysis of clinical problems and guide

Alternative Curriculum: First Two Years

First Year	Fall courses
ALT 451	Cellular & Molecular Biology
ALT 464	Behavioral Science I
ALT 471	Epidemiology
ALT 511	Introduction to Patient I
Winter courses	
ALT 452	Anatomical Sciences
ALT 465	Behavioral Science II
ALT 472	Preventive Medicine I
ALT 512	Introduction to Patient II
Spring courses	
ALT 453	Physiology & Intro. to Pharmacology
ALT 466	Behavioral Science III
ALT 473	Preventive Medicine II
ALT 513	Introduction to Patient III
Second Year	Fall courses
ALT 514	Introduction to Patient IV
ALT 531	Neurosciences
ALT 540	General Pathology
Winter courses	
ALT 515	Introduction to Patient V
ALT 532	Psychopathology
ALT 541	Pathology, Pathophysiology, and Pharmacology I
Spring courses	
ALT 516	Introduction to Patient VI
ALT 542	Pathology, Pathophysiology, and Pharmacology II

the students in addressing other learning objectives of the small group sessions. The teaching program does not include formally scheduled lectures. However, faculty from each of the basic sciences are available to answer questions and otherwise discuss the subject matter. Access to laboratories and tutorials for specific objectives in the preclinical curriculum is also included. Learning examinations are provided for use at the student's discretion. The examinations used in the alternative curriculum are consistent with the goals of the program and include integration of the basic science

disciplines with clinical practice and the enhancement of problem-solving skills.

While the faculty believes that all students can benefit from this learning format, the program should be of special interest to students who prefer self-initiated, active responsibility for learning, profit from the give and take of many small group discussions, and enjoy problem solving. Students who elect to be part of the alternative curriculum will remain in the program for the first two years of medical school.

All students admitted to Rush Medical College are eligible for participation in the alternative curriculum. Since positions in the alternative program are limited, it is anticipated that not all interested students will be offered a position in the program. Failure to gain admission to the alternative program will in no way jeopardize a student's status in the traditional curriculum. Students who wish to be considered for the program may apply any time during the admissions process.

Third and Fourth Years. The curricula of the third and fourth years provide students with training in clinical skills, diagnosis, and patient management in a variety of patient care settings.

The clinical curriculum includes required core clerkships in family practice, medicine, neurology, pediatrics, psychiatry, obstetrics/gynecology, surgery, and a required senior subinternship in medicine, family practice, or pediatrics totaling 58 weeks. In addition, 20 weeks of elective study in areas of special interest to each student is also required.

With few exceptions, the required core clerkships are taken at Rush-Presbyterian-St. Luke's Medical Center, Christ Hospital and Medical Center, or at another Rush network institution. Eight of the 20 weeks of required elective work must be carried out at Rush-Presbyterian-St. Luke's Medical Center or in a of the affiliated or associated hospitals within the Rush-sponsored elective at a network institution. Up to 12 weeks of additional elective study may be carried out at other approved institutions.

The core clerkships in internal medicine, pediatrics, obstetrics/gynecology, and surgery must be completed during the third year as prerequisites to a required (core) four week subinternship in internal medicine, family practice, or pediatrics which is taken during the senior year.

Though scheduling of other required core clerkships is somewhat flexible, students are encouraged to complete these clerkships early in order to make better use of elective options in the fourth year. Students participate in assignment of required core clerkships although the final

decision concerning core and elective clerkship rotations rests with the office of the dean.

Academic Progression. Evaluation of progress at the medical college is an important part of the learning process. Course examinations are aimed at allowing both the students and the faculty to assess progress toward defined learning goals. The final result of evaluation in course work is recorded as honors, pass, or fail. At the end of each quarter or clinical period, evaluations are submitted to the office of the dean.

The Committee on Student Evaluation and Promotion (COSEP) is a standing committee of Rush Medical College. The committee determines when students have satisfactorily completed requirements for promotion and may require additional study by students who have not satisfactorily completed aspects of the medical college curriculum. It also recommends candidates for the degree of doctor of medicine to the Faculty Council and accepts the responsibility of recommending to the Faculty Council the dismissal of any student whose academic performance, including noncognitive as well as cognitive aspects, is unacceptable in the judgment of the committee.

National Board of Medical Examiners (NBME) subtests are occasionally used by departments to evaluate student knowledge. Scores from these examinations are kept confidential and are not available to any other institution or agency without the prior written permission of the student. Students may review their complete academic record in the office of clinical curriculum on Tuesday through Friday afternoons or by appointment.

Rush uses a system of student anonymity for all written examinations. Performance in courses is known only to the student, his/her academic advisor, the course director for each course, and appropriate members of the Office of the Dean, provided that a minimum passing level of achievement has been demonstrated. Otherwise, the information is also presented to COSEP. Ratings by clinical instructors and, in most instances, oral and written examinations form the basis of evaluations of student performance in clerkships and, therefore, also the basis of recommendations for residencies. At the time of application for postgraduate training, a letter of evaluation is written by the office of the dean with major contributions from the student's academic advisor. Prior to the composition of this letter, an individual conference is held with the student, and all pertinent factors for the letter of evaluation are assessed.

Academic Policies

(Additional policies are listed in the Academic Information section.)

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. Rush Medical College assigns no credit hour value to its courses. Medical students are enrolled full time even when carrying a reduced course load. Additionally, the clinical portion of the curriculum deviates from the quarter system by specifying the dates and number of weeks of full-time study spent in each area.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. Information that is posted on the transcript is the course prefix and number, title, and a K grade. A transcript guide that accompanies all transcripts issued by the office of the registrar explains that the K grade means credit was earned through proficiency examination.

Academic Difficulty. The following are policies concerning students in academic difficulty:

Students in Academic Difficulty. Course directors will, at the earliest possible time, notify the Office of the Dean of the college of any students having academic difficulty. The office of medical student programs will work with such students and with course directors to clarify the nature of the problem and to seek appropriate solutions. Students in academic difficulty should establish contact with the course director and appropriate member of the Office of the Dean to explore the factors relating to the student's academic difficulty.

Academic Probation. A student with significant academic deficiencies as determined by COSEP shall be considered on academic probation. Students placed on academic probation are thereby informed that there is serious concern about their academic performance and that they are subject to dismissal from the college should their unsatisfactory academic performance continue. Students shall be notified in writing why they have been placed on probation and what requirements must be met to be removed from probationary status. Students on probation may not register and receive credit toward the M.D. degree for courses (including clerkships) at other institutions without the consent of the Office of the Dean.

Automatic Probation. A student who has outstanding failures in courses scheduled for a total of 90 or more contact hours, who has a failure in a single required clerkship or who does

not pass the National Board of Medical Examiners Part I Examination to be called United States Medical Licensing Examination (USMLE), Step I after May, 1992 by November of the third year shall automatically be placed on academic probation.

Probation by COSEP. COSEP may place on academic probation any medical student who demonstrates deficiencies that COSEP, in the reasonable exercise of its discretion, determines to be significant.

Removal from Probation. A student shall remain on academic probation until he/she has made up all academic deficiencies and has met any other requirements established by COSEP for removal from probation.

Changes in Student Status. The following policies apply to students who are changing their status:

Scheduling First-Year Studies Over Two Years. Prior to the start of the spring quarter of the first year, a student may petition COSEP for permission to complete the requirements of the first year over a two-year period. A proposed schedule of courses, developed in consultation with a member of the Office of Medical Student Programs, will be presented to COSEP as part of the student's petition. COSEP shall decide upon such petition and advise the student in writing of its decision.

Leave of Absence. The associate dean for medical student programs will decide upon each request for leave of absence and will determine the duration of the leave and the conditions, if any, for resuming status as a full- or part-time student. A student may not go on a leave of absence without first stating in writing to the dean his/her intent to return to the college to complete the requirements for the M.D. degree.

The dean will consult with COSEP insofar as possible before approving a leave of absence for a student with academic deficiencies. (See Academic Information section for an additional requirement.)

Withdrawal from the University. Withdrawal is the voluntary termination of enrollment by a student. A student who withdraws and subsequently seeks reinstatement must submit a written petition for reinstatement to the Committee on Admissions of the college, if withdrawal took place before the completion of the student's first quarter of enrollment. If the student withdrew subsequent to the first quarter of enrollment, the student must submit a written petition for reinstatement to be reviewed by COSEP. Recommendations by COSEP are then sent to the Dean.

A student who fails to register and enroll in courses according to the policies of the college

will be considered to have withdrawn. A student withdrawing under this provision may submit a written petition for reinstatement to the dean. The dean shall determine whether special circumstances existed that justified the student's failure to register or whether the student's petition should be forwarded to the appropriate faculty committee as set forth in the above paragraph.

Suspension. Suspension is the administrative termination of the enrollment of a student for a specific period of time.

Dismissal. Dismissal is permanent administrative termination of the enrollment of a student.

Grounds for Dismissal. The following shall constitute grounds for academic dismissal from the college:

- Outstanding failures, in any combination, in the first or second years in courses whose total of scheduled instructional hours equals or is greater than 35 percent of the total scheduled instructional hours for the entire first or second year. (An outstanding failure is a failure which remains after a student has not passed a course's single make-up examination or which remains because the student did not qualify to take the make-up examination.)
- A second failure in a given required core clerkship.
- A failure in a second required core clerkship even though one may have previously been made up.
- Unsatisfactory completion of a remedial program by a student on academic probation where satisfactory completion of such program was a requirement for continued enrollment.
- Failure after three attempts to pass the Step I of the United States Medical Licensure Examination shall constitute grounds for automatic dismissal.
- a determination by COSEP that a student is not fit to practice medicine. Fitness for the practice of medicine includes demonstrated ability to be a competent and effective physician and performance which reflects good moral character, a sense of responsibility, sound judgment, and the ability to master and properly apply subject matter.

Procedure for Dismissal When a student is subject to dismissal the following procedures will be followed.

COSEP Action. COSEP shall review the performance of a student in accordance with these rules and, where appropriate, may recommend the dismissal of a student. The chairperson of COSEP shall notify the student who is subject to a COSEP recommendation for dismissal of COSEP's action and of the student's opportunity to meet with COSEP before it submits its recommendation to the Faculty Council. If the student fails to request a meeting with COSEP within 14 days from his/her receipt of the chairperson's notice, the student shall have waived any right to such meeting. The chairperson of COSEP shall determine the procedures for conducting the meeting with the student and shall in his/her sole discretion determine whether any participant in the meeting may be represented by an attorney.

After meeting with the student, if such meeting is requested in a proper and timely manner, COSEP shall submit its recommendation in writing to the Faculty Council.

Faculty Council Action. Within a reasonable time following its receipt of COSEP's recommendation, the Faculty Council shall consider the recommendation. The vice chairperson of the council shall chair meetings of the council when the council is considering recommendations for the dismissal of a student and shall invite the student and the student's faculty advisor to attend the Faculty Council meeting during its consideration of the COSEP recommendation affecting the student. The Faculty Council may in its sole discretion conduct a part of its deliberations concerning such recommendation outside the presence of the student and his/her advisor. The vice chairperson of the Faculty Council shall determine the procedures for conducting its meeting with the student and shall in his/her sole discretion determine whether any participant in the meeting may be represented by an attorney. The Faculty Council shall submit its written recommendation together with COSEP's recommendation to the dean.

Dean's Action. The dean shall consider the recommendations of COSEP and the Faculty Council and shall make the final determination concerning the affected student's status in the college. The dean shall notify the student, COSEP, and the Faculty Council of his/her decision in the matter.

Examinations in a Course. The attainment of course goals by students should be evaluated by written examinations and/or other appropriate means. The course director will determine the

number and format of examinations. Courses with more than 50 hours of scheduled instruction per quarter should include more than one examination or other evaluative exercise per quarter. Students should refer to the course director and course materials concerning those requirements (e.g., attendance).

Course Grades. All preclinical courses in the traditional curriculum use a uniform minimum pass level: a score of 70 percent or 1.5 standard deviations below the class mean, whichever is lower—with the additional provision that any student with a score of less than 55 percent will be considered to have failed regardless of the mean pass level determined by the curve. A grade of “honors” may be given at the discretion of the course director to students whose performance falls within the top 15 percent of the class.

Examination Period. In the medical college, no classes are scheduled during the examination period; examinations in preclinical courses are scheduled by the assistant dean for preclinical curriculum.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work. Upon completion of the unmet course requirements this grade will be replaced by the new grade.

In-Course Make-up Examinations. Students may be guided by the following policies concerning in-course make-up examinations:

Excused Absences. Students with valid reasons may request permission from the office of medical student programs to reschedule an examination. The decision to grant such permission will be made by the dean's office in consultation with the course director.

Unexcused Absences. A course director is not obligated to provide a make-up examination for an unexcused absence from an examination.

Make-up Examinations for Failed Courses in First and Second Years. A student receiving a failing grade at the completion of a course shall be given an opportunity to take a single make-up examination as a means of demonstrating his/her proficiency in the subject to rectify his/her failure. However, a student who fails a course with a

score more than two standard deviations below the class mean will not be offered such a make-up examination. Further, a student may take make-up examinations in no more than two courses in any one quarter. If more than two courses are failed, the student, in consultation with his/her academic advisor, may choose which examinations to take. Make-up exams will be completed no later than the first week of the quarter following a course failure. Format, content, and passing grade for make-up exams will be determined by the course director. Make-up examinations will be scheduled by the dean's office in consultation with the appropriate course directors.

Status of Students with Course Failures. COSEP shall review the status of students who fail make-up examinations or who have outstanding course failures for which they did not qualify to take make-up examinations and shall consider options for remedial work.

At appropriate times during the academic year, as determined by the chairperson of COSEP in consultation with the associate dean for medical student programs, COSEP will review the progress of each student who has failed a course. After such review, COSEP either shall establish requirements which a student must meet in order to resolve his/her deficiencies in academic performance or shall recommend dismissal.

No student shall be promoted from the second year to the third year until he/she satisfactorily completes all requirements of the first and second years. COSEP, in its discretion, may schedule second-year courses concurrently with make-up work for unsatisfactory first-year work, as it may consider appropriate for an individual student.

Remedial Programs for Students Failing Courses. Guidelines for remedial programs are as follows:

First and Second Years. COSEP shall establish requirements for remedial work for students with one or more outstanding course failures in the first or second year. Remedial work requirements shall be reasonably related to the seriousness of the student's deficiencies. Such requirements may include, but need not be limited to the following: Summer tutorial study with re-examination; participation in an approved summer course; retaking failed courses during the next academic year; and retaking all courses including those satisfactorily passed.

In developing requirements, COSEP will consider the needs of the individual student and will endeavor to develop a program that, if successfully completed, will strengthen the student's prospects for successfully completing the remainder of his/her college program. Students who have no outstanding failures at the end of an academic year, but who have had to take make-up examinations in courses whose total of scheduled instructional hours equals or exceeds 30 percent of the complete program of instruction for that entire academic year may be placed on academic probation, in which situation COSEP will establish the requirements which students must meet before they are able to proceed to the studies of the next academic year.

Third and Fourth Years. A failure in a required core clerkship must be made up in a manner prescribed by the course director, approved by COSEP, and consistent with the reasons for the student's failure. Should a student be required to repeat all or part of the clinical rotation, effort should be made to have the student work with different supervisory and instructional staff. A student required to repeat clinical work in a required core clerkship should complete the failed course prior to beginning another core rotation. A student failing an elective clerkship must either repeat the elective or, with the approval of the dean's office, complete an alternative elective.

Failure to Pass Step I of United States Medical Licensure Examination. All students must take Step I of the USMLE in June at the completion of their second year. Permission to defer taking this examination must be granted by the office of medical student programs. Students who do not pass USMLE Step I by November of their third year will be placed on probation and reviewed by COSEP. COSEP may require the student to defer part or all of his/her clinical program to provide sufficient time for preparation. Students must take USMLE Step I three of the first four times it is offered to the class. Students who fail the examination three times will be automatically dismissed.

Graduation Requirements. The following are prerequisites to the granting of the degree of doctor of medicine by Rush University:

- The level of achievement required by the faculty for the degree of doctor of medicine must be attained in a minimum of 35 months.
- Credit toward the M.D. degree may be granted to a student by the Office of the

Dean for appropriate course work accomplished prior to matriculation at Rush Medical College.

- A minimum of 78 weeks of instruction at Rush Medical College is required for students entering at the third-year level from other medical schools. The Committee on Student Evaluation and Promotion may recommend additional weeks of instruction depending upon the progress made by any Rush Medical College student.
- Each student's progress in each year of the Rush Medical College curriculum will be evaluated by the Committee on Student Evaluation and Promotion, and additional study may be required in any year for students with academic difficulty.
- Students must pass all courses in the preclinical years before entering the clinical phase of the curriculum.
- Prior to graduation, students are required to pass Part I and complete Part II of the examinations offered by the National Board of Medical Examiners to be called Step I and Step II of the U.S. Medical Licensing Examination after May 1992.
- Students must pass all required clerkships and Step I of the U.S. Medical Licensing Examination and be scheduled for completion of all elective clerkship requirements by December 31 of the current year in order to participate in commencement ceremonies.

Policies Concerning Student Misconduct

The Committee on Student Judiciary Review is charged with investigating and adjudicating charges of student misconduct of a nonacademic nature, including but not limited to violation of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her profession; or other conduct that is inconsistent with generally accepted standards of behavior within an academic community or the medical profession.

All charges of student misconduct of a nonacademic nature shall be presented to the associate dean for medical student programs. If in the opinion of the associate dean, the matter may be resolved without a hearing, an attempt may be made to do so.

The student charged with misconduct or the associate dean may at any time exercise the right to have the charges heard by the Committee on Student Judiciary Review. In every case, the associate dean will notify the complainant in writing by registered letter within 30 days of receiving the complaint as to whether the matter was resolved without a hearing or whether the matter was referred to the Committee on Student Judiciary Review. If a disposition requires more than 30 days, the associate dean will notify the complainant in writing every 30 days until the matter has reached a disposition.

If the complainant is dissatisfied with the resolution of a matter that has not been referred to the Committee on Student Judiciary Review for a hearing, he/she may request that the decision be reviewed by an ad hoc committee consisting of two faculty members and one student appointed by the dean. In order for a complainant to initiate a review of the associate dean's decision, the complainant must notify the associate dean in writing that he/she seeks a review, and the notification must reach the associate dean within 15 working days from the time the complainant received written notification of the associate dean's disposition.

Upon a timely request, the dean will constitute the Ad Hoc Committee within two weeks. Members of the Ad Hoc Committee may not simultaneously serve as members of the committee on Student Judiciary Review. The Ad Hoc Committee will convene to accept testimony (in person or in writing) from the complainant, the student charged, and the associate dean. The ad hoc Committee will only accept evidence that addresses the issue of whether the associate dean failed to consider certain relevant facts that would warrant a full hearing. In the case of such a review, the ad hoc Committee may reach one of two decisions by a simple majority vote: 1) endorsement of the associate dean's prior disposition or the matter or 2) a decision ordering that the Committee on Student Judiciary Review hear the matter in a full hearing.

The decision of the committee shall be in writing, shall contain a summary of the evidence and testimony upon which the decision is based, and shall be delivered to the student, the senior representative body of the college, and the dean. The senior representative body shall consider the committee's determination and any written

exceptions to said determination submitted by the student, and shall render its recommendation adopting, rejecting or modifying, in whole or in part, the committee's conclusion. Copies of the senior representative body's recommendation shall be transmitted to the Committee on Student Judiciary Review, the student and the dean. The dean will then consider the matter and render a final, nonappealable decision with respect to the charges of misconduct.

Student Conduct and Academic Honesty

(Please refer to the Rush University policy statement in the General Information section, on page 9).

Academic Advisor Program

The Academic Advisor Program consists of specially selected and trained faculty members for each class who provide systematic counseling and guidance for cohorts of approximately 15 students each throughout the four years of medical school. The advisors are kept informed of current policies, procedures and trends affecting students' participation in both curricular and noncurricular aspects of medical school by the assistant dean for academic counseling, who is responsible for program planning, coordination, and evaluation. Advisors provide counseling in three interrelated areas: academic (regarding the acquisition of the knowledge and skills for becoming a competent physician), personal (regarding the growth and development of the person), and professional (regarding the selection of a career and graduate training program for which the individual is best suited). Besides assisting each of their advisees through the various phases of medical school, the advisors assist in writing of the dean's letters, which is the summation of the student's progress while at Rush used in applying to graduate medical education (residency training) programs.

Student Research Opportunities

Students are encouraged to have some research experience while they are in medical school. The opportunities range from laboratory experiences in the biomedical sciences to clinical investigation and field work in epidemiology, preventive medicine, and primary care. Such research can be carried out during summers or during time allotted for elective experiences. The student's academic advisor and the office of medical student programs will assist in arranging for research experiences.

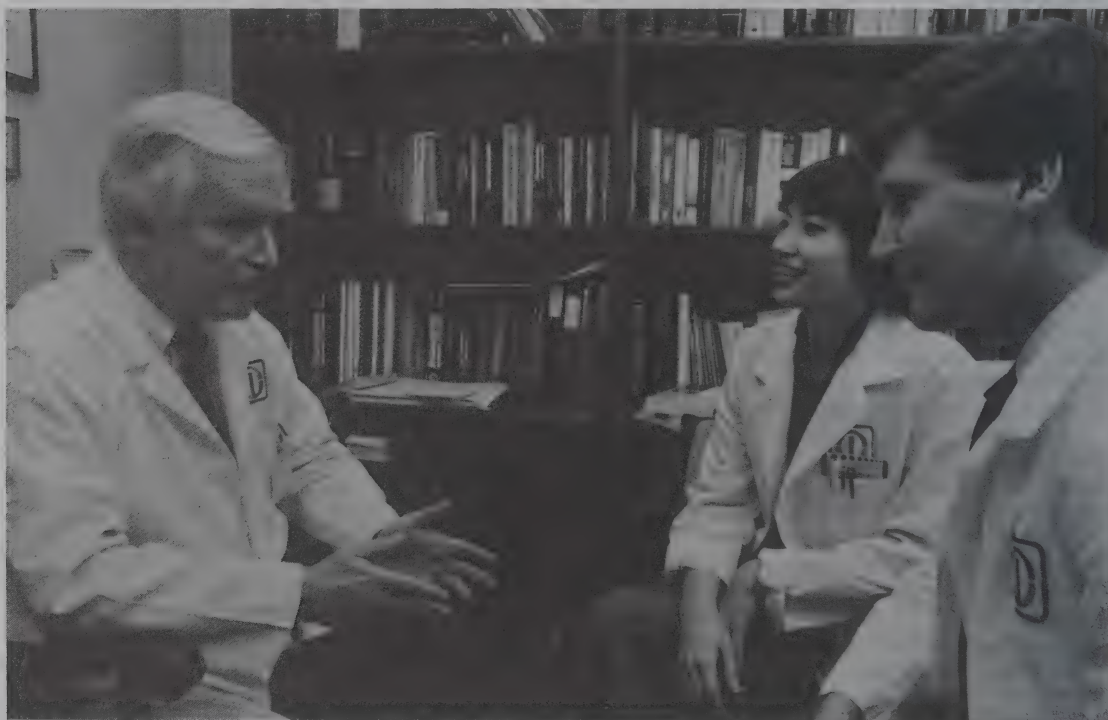
Continuing Medical Education

The office of continuing medical education supports the sponsorship of medical and health professions symposia, workshops, and conferences for practicing professionals. Students may register at reduced rates for some Rush-sponsored programs. The staff provides services to faculty and staff of the University and Medical Center that include consultation in planning meetings, budget preparation and marketing, including strategy and brochure development, printing and advertising. A computerized registration system maintains attendee records, confirmation letters, and

attendance lists. For each meeting, the office prepares name tags and certificates of completion.

All programs are supervised by an experienced meeting planner who directs the marketing activities, orders all supplies and audiovisual equipment, and is on site during the program to assure its smooth operation. After the program concludes, the meeting planner prepares a program evaluation, a complete financial report, and detailed marketing and registration summaries.

Information regarding services and future programs can be obtained by calling (312) 942-7119 or 8728.



COLLEGE OF NURSING



*Kathleen Gainor Andreoli, D.S.N.,
The John L. and Helen Kellog Dean,
College of Nursing
Vice President, Nursing Affairs*

"At Rush-Presbyterian-St. Lukes Medical Center nursing sets a national standard for excellence in patient care. This is accomplished through the unique integration of academic functions and health care services resulting in innovative nursing care delivery systems, nationally recognized educational programs culminating in the preparation of clinical nursing scholars in specialized care disciplines, and research programs that contribute to the scientific basis of clinical and administrative practice in nursing."

College of Nursing

Philosophy

The faculty of the College of Nursing embraces Rush University's commitment to the achievement of national and international leadership in setting of standards of excellence in patient care, education, research and management. This is accomplished through a unique integration of the academic function with the health care function which aims to provide high quality, compassionate, comprehensive health care services.

Nursing as a health discipline applies humanistic, scientific, and professional knowledge in patient care and is responsible for the generation, accumulation, and dissemination of new knowledge that will improve nursing care and its delivery. The ability to work collaboratively with other health professionals and to contribute constructively towards change in the provision of health services to society are integral components to the College of Nursing's philosophy.

The profession's focus of concern is maximizing the health of humankind. Health is viewed as a dynamic process that reflects adaptation and change in various levels of the human system (individual, group, society). Human functioning occurs within the context of interacting biological, psychological, social and environmental systems and varies throughout the life cycle. Thus, humans are exposed to disease and discord as well as opportunities for growth. The nurse acts with and/or for patients to provide care and interventions that maximize functioning and promote positive responses to actual or potential health problems.

Through the use of a systematic problem solving technique (the nursing process), professional nurses assess their patients' health status and plan, implement and evaluate interventions that support the health care process. Nursing practice involves collaboration with the patient and other health professionals in providing and coordinating health care services. The independent and interdependent functions of the nurse are based on the profession's continuously developing body of knowledge.

Learning is viewed as a lifelong process; thus programs offered by the College of nursing provide for sequential professional development in each of the role components of practice, education, research and management. Students enter and exit the professional learning system at various levels based on their personal backgrounds and career goals. Faculty members

provide learning environments that enhance the student's individual potential and professional growth. Independent learning and flexibility are encouraged in meeting program objectives.

Education for professional nursing includes the elements of a liberal education, the inculcation of professional values, and the discovery, synthesis and application of knowledge in nursing care. Scholarly inquiry, competency in clinical judgement and leadership are personal qualities essential for promotion of the profession. Growth and development of these qualities are fostered in students at all program levels. Thus, the College of Nursing of Rush University advances the profession by contributing to its developing body of knowledge; by setting and maintaining standards of excellence in nursing practice, education, research and management; and by providing innovations in nursing and health care.

Entry and Exit Options

Along with the adoption of a revised philosophy in 1987, the faculty of the College of Nursing approved a curriculum framework which allows multiple entry and exit options for students pursuing professional nursing education. Two new entry options (R.N./M.S. and Graduate Entry Level for students with no previous nursing education) and one new exit option (Doctor of Nursing) were incorporated in the revised curriculum. Previous academic and professional education serve as the foundation for programs of study preparing students for progressive levels of specialization and responsibility as professional nurses.

Exit Points. Four exit options are available to students enrolled in the College of Nursing. Depending on the background of the student, four degree offerings, Bachelor of Science (B.S.), Master of Science (M.S.), Doctor of Nursing (N.D.) and the Doctor of Nursing Science (D.N.Sc.) comprise the exit points in the curriculum continuum. These are the points at which a student may end his/her academic advancement or stop with the option of reentry to continue his/her academic growth in nursing. Movement from one exit level to the next is always contingent upon evidence of academic potential for success at higher levels of study. Academic progression is reviewed regularly and students are advised of the options available to them.

TERMINAL OBJECTIVES FOR GRADUATES

Conceptual Threads	Bachelor of Science	Master of Science
1. Disciplinary knowledge	<p>Synthesize and apply a broad base of knowledge from the humanities and biological and social sciences in clinical nursing practice.</p> <p>Apply selected theories in clinical nursing practice.</p>	<p>Synthesize and apply an in-depth base of knowledge and selected humanities and biological and social sciences in a specialty clinical practice.</p> <p>Apply a variety of theories in clinical nursing practice.</p>
2. Clinical Practice	<p>Function as generalists in clinical nursing practice.</p> <p>Demonstrate clinical judgement in assessment, planning, implementation and evaluation of preventive, therapeutic and rehabilitative health care for individuals, families and communities throughout the life cycle.</p> <p>Determine the need for and utilize a consultant for clinical problem solving.</p>	<p>Function as specialists in nursing practice.</p> <p>Demonstrate clinical judgement in the assessment, planning, implementation and evaluation of patients in a specialty area of practice.</p> <p>Provide leadership in specialty area of practice.</p>
3. Learning/ Teaching	Identify and apply basic concepts and principles of learning and teaching with patients and peers.	Utilize concepts and principles of learning and teaching with patients (individual and group) and peers in a specialty area of practice.
4. Management/ Leadership	<p>Utilize basic concepts of leadership and management including knowledge of internal and external organizational influences on nursing practice.</p> <p>Function collaboratively with other members of the health care team to provide continuity of care.</p>	<p>Analyze the nursing component of health care systems within the context of interacting social, economic and political system.</p> <p>Participate in the change process of health care systems, incorporating knowledge of social and political forces.</p>
5. Research	<p>Apply research findings in clinical practice.</p> <p>Identify clinical problems for continued research.</p>	<p>Analyze, evaluate and apply research findings in the selected field of clinical practice.</p> <p>Participate in clinical research studies.</p>
6. Professionalism	<p>Demonstrate commitment and accountability to health care consumers and to professional standards.</p> <p>Engage in activities that promote individual professional development.</p> <p>Demonstrate an understanding of personal values, attitudes and nursing qualities that form the foundation for professional behavior.</p>	<p>Participate in the development of professional standards for clinical practice.</p> <p>Participate in activities which promote development of the profession.</p> <p>Incorporate professional values in specialty nursing practice.</p>

Bachelor of Science. The objectives of the undergraduate program in nursing are to create a climate of learning for students to grow and develop as competent beginning professional nurses.

Master of Science. The master's level of the curriculum is designed to prepare graduates to function as beginning clinical nurse specialists. These roles require the central focus on clinical practice with a beginning level of knowledge and skill in education, research, administration and consultation.

OF THE COLLEGE OF NURSING

Doctor of Nursing	Doctor of Nursing Science	Conceptual Threads
<p>Use understanding of complex clinical situations to build specialty nursing knowledge.</p> <p>Evaluate usefulness of theories for clinical nursing practice, education and management.</p>	<p>Integrate knowledge from multiple disciplines in providing clinical nursing practice.</p> <p>Test and/or generate concepts, theories and models for clinical nursing practice.</p>	1. Disciplinary knowledge
<p>Function as advanced clinical specialists or nurse practitioners integrating the role of teacher or manager within clinical practice.</p> <p>Demonstrate advanced clinical judgement in assessment, planning, implementation and evaluation of patients in a specialty area of practice.</p> <p>Provide clinical consultation in a specialty area of practice.</p>	<p>Function as clinical nursing scientists.</p> <p>Advance the use of clinical judgement in clinical nursing practice.</p> <p>Provide consultation in the resolution of issues and problems in clinical practice.</p>	2. Clinical Practice
<p>Provide consultation for learning and teaching needs of patients and peers.</p>	<p>Evaluate the application of concepts and principles of learning and teaching within clinical practice, education and management.</p>	3. Learning/ Teaching
<p>Analyze the social, economic and political components of health care systems which affect care planning and delivery.</p> <p>Initiate change and collaborate with others to implement and evaluate changes in health care systems.</p>	<p>Systematically evaluate changes in care systems commensurate with current knowledge and future health needs of society.</p> <p>Provide leadership in management and change processes.</p>	4. Management/ Leadership
<p>Initiate clinical research utilization studies.</p> <p>Promote an environment which facilitates the conduct and utilization of clinical research.</p>	<p>Design, conduct, direct, and report clinical research studies.</p>	5. Research
<p>Provide leadership in the development of professional standards for clinical practice.</p> <p>Facilitate the professional growth and development of others.</p> <p>Insure the incorporation of professional values in nursing practice, education, management and research.</p>	<p>Evaluate standards set forth by the profession in the advancement of nursing practice and nursing science.</p> <p>Demonstrate commitment to the advancement of nursing practice and nursing science through the dissemination of knowledge.</p>	6. Professionalism

Doctor of Nursing. The student who completes the prescribed program of study for the N.D. degree is prepared to function as an advanced clinical specialist or nurse practitioner, integrating the role of teacher, consultant and manager of clinical practice. The graduate will also be prepared to initiate clinical research utilization studies and promote an environment which facilitates the conduct and utilization of clinical research.

Doctor of Nursing Science. A graduate of the D.N.Sc. program will have developed competencies as an expert clinical practitioner, the investigative skills of a nurse research, and the leadership skills for developing health policy and changing health care systems.

Entry Points. Several entry points are available, depending on the educational goals and academic background of the student. Students with no formal background in nursing can progress through the highest degree offered or exit at another level. Likewise those with master's level preparation can enter and achieve either of the higher degrees offered. Six entry points are available, depending on the background of the applicant.

1. College student with ninety hours of college credit.
2. R.N. with a minimum of ninety hours of college credit.*
3. College graduate with a baccalaureate degree.
4. R.N. with a baccalaureate degree in a field other than nursing.*
5. R.N. with a baccalaureate degree with an upper division major in nursing.
6. R.N. with a master's degree in nursing.

Applicants from group 1 must apply for the B.S. exit.

Applicants from group 2 may apply to either the baccalaureate exit or for one of the graduate exits. Those not meeting graduate admissions standards may be acceptable for the baccalaureate program.

Applicants from groups 3 through 5 may apply directly for the M.S. degree, the N.D. degree or the D.N.Sc. degree programs.

Applicants from group 6 may apply for the N.D. or D.N.Sc.

Registered Nurse (R.N.) applicants who do not have a B.S.N. may need to take placement examinations to validate previous nursing course work. See groups indicated with an asterisk (*) above. Information regarding these examinations may be obtained from the College of Nursing Office of Student Support Services.

Terminal objectives for each of the four degree points are displayed on the previous pages.

Admission

Prelicensure Level (Bachelor of Science). Students may enter Rush at the junior level after completing a minimum of two years at another accredited college or university. An individual may attend either an approved postsecondary institution of his/her choice or one of 17 colleges and universities affiliated with Rush. Although

students from affiliated schools have priority in admission, these students usually comprise approximately 25 percent of the entering class. All other spaces are filled by applicants from nonaffiliated institutions.

Students interested in attending an affiliated school are encouraged to submit applications to the affiliated colleges and universities soon after the beginning of their senior year in high school. Each college has its own entrance requirements. The student's academic progress will be monitored by both Rush and the health careers advisor on the affiliated college campus. Students meeting the objectives of the prehealth curriculum, obtaining the approval of the health careers advisor and filing all required documents, will move to Rush University to pursue the final two years of the program.

Transfer credit is not awarded for required course work in which the student earned less than a C grade. Physical education and technical skill courses are not accepted for transfer credit.

Program Prerequisites. Applicants from groups 1 through 3 must take course work that includes the following:

Natural Sciences #	24 quarter hours minimum
Social Sciences ##	20 quarter hours minimum
Humanities	12 quarter hours minimum
English Composition ###	2 course
Introductory Statistics	1 course

- # Required courses include inorganic and organic chemistry, human anatomy and physiology microbiology
- ## Recommended courses include psychology, sociology and anthropology
- ### Proficiency at Composition II level

Those that have deficiencies in course work may be found eligible for entrance but may be required to take up to 11 quarter hours of science course work in order to gain sufficient background to proceed.

Applicants must submit transcripts of all college work attempted and recommendations from three individuals who know the applicant well. Two recommendations must come from former teachers and one from the applicant's most recent employer, when applicable.

All materials of the application are taken into consideration when evaluating an applicant.

Graduate Nursing Levels of Study. Each applicant to graduate study should have earned a baccalaureate degree with a recognized upper division major. The majority of credit toward the degree should be earned through university level coursework. Previous nursing course work completed at other schools or at schools not offering an upper division major in nursing must be validated by examinations to assist in the

evaluation of previous nursing coursework. Arrangements for these examinations are managed by the Office of Student Support Services.

Programs of study developed by the student and his/her advisor will incorporate previous academic work and the requirements for the exit option selected by the student. Individuals with no previous nursing education will complete prelicensure requirements as part of their graduate studies. Admitted students are encouraged to begin study in the summer quarter to complete prelicensure level requirements. Progression from one level of graduate study to another requires maintenance of stipulated academic standards.

Applicants to graduate study must submit transcripts of all college work attempted, and Graduate Record Examination (GRE) results. Registered nurses must submit evidence of licensure in at least one state or jurisdiction. All applicants must complete an interview with at least one faculty member and submit recommendations from three persons who can evaluate the individuals potential for success in graduate study. D.N.Sc. applicants must submit at least one recommendation from a person who has completed doctoral studies.

All materials submitted are taken into consideration when evaluating a student. The faculty may recommend an exit option different from the one requested based upon an evaluation of the applicant's potential for success in the curriculum.

International Students. Students from other countries are welcome to apply to both undergraduate and graduate levels of study. Only limited financial aid is available. Successful completion of the Test of English as a Foreign Language (TOEFL) - minimum score of 550 - and Test of Written English (TWE) - minimum score of 5, are required if the major portion of the applicant's prior education has not taken place in an English-speaking school.

Curriculum

Bachelor of Science. The prelicensure curriculum consists of 90 quarter hours of pre-health course work including those program prerequisites listed in the admissions section. The two-year upper division nursing curriculum requires a minimum of 90 quarter hours of upper division study in nursing and related science courses for a total of 180 quarter hours for the bachelor of science degree.

Required courses for this program are listed below and include 31-42 hours of basic nursing and science:

Natural Science Basis for Nursing Practice

NUR 341 N.S.B.N.P.: Microbiology	3
NUR 342 N.S.B.N.P.: Inorganic Chemistry	2
NUR 343 N.S.B.N.P.: Organic Chem & Biochem	3
NUR 344 N.S.B.N.P.: Anatomy and Physiology	4

Basic Nursing Courses

NUR 302 Found. of Professional Nursing Practice	6
NUR 303 Basic Health Assessment	3
NUR 361 Pathophysiology	4
NUR 363 Theories of Human Response to Illness	4
NUR 382 Introduction to Research	2
NUR 403 Social Systems Theory in Nursing	2
NUR 405 Role of the Nurse in Hlth Care Systems	3
NUR 410 Educational Processes in Nursing	2
NUR 472 Intro to Normal and Clinical Nutrition	2
PHR 301 Introduction to Pharmacology	3

Primary Clinical Courses

Seven primary clinical courses of five quarter hours each (35 q.h. total) are required:

NUR 314 Medical Surgical Primary Clinical I	5
NUR 315 Medical Surgical Primary Clinical II	5
NUR 316 Pediatric Nursing Primary Clinical	5
NUR 317 Obstetrical Nursing Primary Clinical	5
NUR 318 Gerontological Nursing Primary Clinical	5
NUR 319 Community Nursing Primary Clinical	5
NUR 320 Psychiatric Nursing Primary Clinical	5

Secondary Clinical Courses

Enrollment in secondary clinical courses may begin after completion of four primary clinical courses. Three secondary clinical courses of five hours each (15 q.h. total) are required:

NUR 411 Nsg for Hlth Promotion & Maintenance	5
NUR 412 Nsg for Hlth Restoration & Support	5
NUR 413 Nsg for Continued Care & Rehabilitation	5

The Graduate Curriculum. The graduate curriculum allows the student to exit with the master of science degree or if accepted for further study, proceed for the N.D. or D.N.Sc. A set of core courses is required for every student at the graduate level with additional hours for each higher degree. Cognate course representing course work from the biological, behavioral and organizational sciences are determined by each degree. Advanced clinical specialty courses are required as determined by an area of concentration.

A minimum of 12 hours of practicum in the area of concentration for the M.S. degree is required plus an additional 8 hours of practicum for the N.D.

Course requirements vary in each area of concentration. The college reserves the right to modify course requirements in consideration of overall curricular goals and design. At least 55 quarter hours of graduate credit or more, depending upon specialization, are required for

the M.S. degree. The N.D. degree requires at least 85 hours of postbaccalaureate study and the D.N.Sc. degree requires 125 quarter hours of postbaccalaureate study exclusive of the dissertation.

Master of Science. The master of science degree in nursing provides opportunities for focus in clinical specialization. Students declare one of six departments: Community Health, Gerontology, Medical, Maternal Child Health, Psychiatric/ Mental Health, or Surgical Nursing. Specialization is developed with selections of clinical seminars and practica. Numerous options are available for student selection in anesthesia, cardiopulmonary, home health, critical care, gerontology, medical, neurological, obstetrical, oncology, orthopedics, psychiatric, rehabilitation, surgical, or transplantation nursing.

A dual degree option is available for those desiring advanced preparation in clinical nursing science and the critical management skills of business administration. Graduates earn the M.S. degree from Rush and the Master of Management (M.M.) degree from the J.L. Kellogg Graduate School of Management at Northwestern University.

The master of science degree in nursing requires completion of a minimum of 55 quarter hours of credit (four quarters of full-time study or 8 to 10 quarters of part-time study), exclusive of prerequisites.

Doctor of Nursing. The doctor of nursing degree allows an emphasis on advanced clinical nursing practice. All areas of concentration listed at the M.S. level are available for the N.D. level. Nurse practitioner foci include: community health, gerontology, neonatal, and pediatric.

Students who have completed at least an undergraduate liberal arts degree and qualify for graduate study can complete the requirements for the N.D. degree in 12 to 15 quarters of full-time study (approximately four academic years of enrollment as full-time students). Students with prior nursing education are evaluated individually and are required to complete curriculum requirements not already accomplished in their earlier nursing education.

Doctor of Nursing Science. The research doctoral program leading to the Doctor of Nursing Science (D.N.Sc.) is designed to develop nursing knowledge through the integration of research in advanced clinical practice. Cognate studies, clinical practice and research methodologies are combined for application to diverse and changing health care needs.

The doctoral student and his/her advisor mutually define an individual program that

includes an area of clinical nursing for specialization and investigation. The doctoral program will enable the graduate to have the competencies of an expert clinician, the investigative skills of a nurse-researcher and the leadership skills needed for developing health care systems.

Academic Policies

(Additional policies are listed in the Academic Information section.)

Academic Progression. Student progress in the College of Nursing is reviewed and evaluated in several ways. The academic policies established by the faculty are interpreted and applied by the student's academic advisor, Director of Student Support Services and the Progressions Committee. The faculty reserves the right to request the withdrawal of any student whose conduct, physical or mental health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Since much of the work in nursing assumes that students will achieve a progressively higher level of understanding and skill, high academic performance is expected. The individual student is responsible for acquiring knowledge inside and outside of formal classroom and clinical settings.

Baccalaureate Students. Baccalaureate students will be considered in good standing at Rush University unless placed on academic probation. A quarterly and cumulative grade point average (GPA) of 2.0 (A=4.0) must be maintained. A student whose cumulative and/or quarterly GPA falls below 2.0 may enroll for no more than two quarters as a probationary student to attempt to raise his/her cumulative and/or quarterly GPA. (During each interim quarter the student must demonstrate improved academic performance.) If at the end of two quarters the required GPA is not attained, the student will be dismissed. Academic probation is limited to a maximum of two quarters during the entire academic program.

An F or N grade in any course is grounds for dismissal from the program. Permission may be given to retake a course at the discretion of the Progressions Committee. If permission is granted, a failed course must be repeated the first time it is offered following the quarter in which the failure occurred or when space is available. Students are limited to repeating only one clinical course.

Graduate Students. Graduate students who are enrolled in prelicensure course work must maintain a quarterly and cumulative GPA of 3.0 in graduate course work and a GPA of 2.75 in the prelicensure component of the program. If GPA falls below 2.75 the student may apply or be asked to transfer to the baccalaureate exit option.

Students in all graduate programs must maintain a cumulative 3.0 average in graduate level work in order to remain in good academic standing. A full-time student whose cumulative GPA falls below 3.0 may enroll for one quarter as a probationary student to attempt to raise his/her cumulative GPA. A part-time student may enroll for two quarters as a probationary student. Students are dismissed from the college upon failing to achieve satisfactory academic standing in the required period of time or if placed on probation for a second time.

A student must achieve an A or B grade in all required clinical nursing courses. If less than a B grade is achieved, a student may repeat the one course with the approval of the Progressions Committee, the student's advisor, and the associate dean for education. An F grade in a required clinical nursing course will result in dismissal from the program.

Transfer of Credit. Undergraduate courses taken at an accredited college or university that fulfill the prerequisites for admission may be applied toward the baccalaureate degree. Elective credit required at Rush may be fulfilled by upper division courses taken at another institution. Upper division courses must be at the 300 or 400 level, or their equivalent, and academic in nature. For instance, courses in physical education or applied arts are not accepted. A transfer credit approval form must be completed.

Graduate credit earned elsewhere may be applied to the M.S., N.D. and D.N.Sc. degree requirements for Rush subject to the approval of the advisor and the director of curriculum and instruction. Graduate level courses taken at a recognized college or university may be applied to the N.D. or D.N.Sc. degree requirements at Rush, subject to the approval of the advisor and the director of curriculum and instruction. Credits in excess of 55 quarter hours require approval of the director of curriculum and instruction. Before this credit may be approved to meet degree requirements, a Transfer Credit Approval form must be completed. The form should be completed during the first quarter of enrollment in the degree program.

After matriculation, students who plan to request credit for courses taken elsewhere must either complete a Transfer Credit Approval form or register for concurrent enrollment. Information

regarding these options is available in the Office of the Registrar.

Prelicensure Enrollment in Graduate Courses. With permission, prelicensure students may register for graduate level courses. Any credit earned in this manner will automatically apply toward the baccalaureate degree. Should any undergraduate student later apply for and gain admission to a graduate program at Rush University, the student may request that the graduate credit earned be applied toward the master's degree. A transfer credit approval form should be completed.

Credit will transfer in this manner only if the student has enough cumulative credits. A student must earn a minimum of 180 quarter hours to receive the bachelor or science degree. For instance, if a student actually earned 187 quarter hours, and seven quarter hours are at the graduate level at Rush, seven quarter hours could potentially be credited toward the master's degree.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. The credit will equal the credit value of the course as listed in the current *Rush University Bulletin*. Information that is posted on the transcript is the course prefix and number, title, credit value and a K grade. A transcript guide that accompanies all transcripts issued by the Office of the Registrar explains that the "K" grade means credit was earned through proficiency examination. Credit for the course will appear in the quarterly and cumulative totals as credit earned. The credit is not calculated into the student's GPA. A fee for the examination is assessed based on the number of credits assigned to the course.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work.

A grade of incomplete does not reflect upon the quality of the student's performance. Upon the completion of the unmet course requirements this grade will be replaced by the new grade.

Students may request an incomplete from a course director. If the course director grants the privilege of an incomplete, the I grade must be removed as contracted by the course director and the student. The I grade must be removed

by the end of the next quarter, or it will revert to a failing (F or N) grade unless otherwise negotiated by the course director and student.

A student receiving an I grade may proceed for one quarter but may not begin a course for which an incomplete grade is a prerequisite. Further continuation is contingent upon the final grade received for the course.

Any exception to these policies for the College of Nursing requires permission of the student's academic advisor, the director of student support services and the Progressions Committee. A memo to the registrar signed by both of the above individuals must be presented at the time of registration when the exception is to be granted.

Absences. Students are responsible for all material presented in class sessions. Faculty will not be available to students who miss or are late for classes. Students are expected to be in attendance at all seminar and clinical practice periods and are responsible for all content presented therein. When illness or other special circumstances prevent attendance, the student is responsible for contacting the instructor (in advance, if possible) to plan for meeting the objectives on an individual basis. Students absent from an examination are responsible for notifying the course director according to the guidelines specified in the course syllabus. Failure to do so may result in a zero for that examination or an incomplete for the course as determined by the course director.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Leave of Absence. A student who must interrupt his/her studies for reasons of sustained ill health or compelling personal situations may apply for a leave of absence for a stated period of time, not to exceed one year. Leaves of absence for one quarter are approved by the advisor and the director of student support services. Leaves of absence for two to four quarters must be approved by the advisor and the Progressions Committee. Nursing students must be in good academic standing to be considered for approval. If approved by the committee and the director of student support services, the student must satisfy the conditions of the leave before reentering and must comply with all policies, requirements and course sequences in effect at the time of reentry. The student must notify the advisor of his/her

intent to return three weeks in advance of reenrollment. (See Academic Information section for additional requirements).

Readmission. Any student who has withdrawn from a program or has not been enrolled for two consecutive quarters or any dismissed student may apply for readmission by submitting an application for this purpose to the office of college admissions services. Applications for readmission must be received at least six weeks before the planned return. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment.

Nursing students who received an unacceptable grade in a course which resulted in dismissal must repeat the course upon their reinstatement. The hour and grade points of the second grade only will be counted in the cumulative GPA.

Graduation Requirements. The bachelor of science degree with a major in nursing requires a minimum of 180 quarter hours. At least 90 quarter hours are used to fulfill the prehealth curriculum. The remaining 90 quarter hours constitute the upper division curriculum of which nine quarter hours may be upper division electives.

A minimum of 45 quarter hours shall be spent as an upper division student in academic residence at Rush University. R.N.'s completing the baccalaureate degree must complete 36 hours in residence at Rush. Credit earned through proficiency examination may not be used to meet this requirement.

Candidates for the B.S. degree must earn a 2.0 cumulative GPA in all required nursing courses. A 2.0 cumulative GPA must be earned in all computed upper division credits taken at Rush University.

During the fourth year, all students are expected to participate in comprehensive examinations which assist faculty in counseling students for licensure examination and are used for program evaluation. However, no minimum score is required.

Participation at commencement is expected of all graduates.

After receiving the baccalaureate degree, graduates are eligible to write the National Council Licensure Examination for Registered Nurses.

The master of science degree in nursing requires a minimum of 55 quarter hours and must include all course work and residencies required for the selected area of concentration. No less than 27 quarter hours shall be spent in residence at Rush University for the M.S. degree. Part-time master's students must complete degree requirements within five years (60 months).

The doctor of nursing degree requires a minimum of 85 quarter hours of postbaccalaureate study and must include all course work and residencies required for the selected area of concentration. No less than 42 quarter hours shall be spent in residence at Rush University for the N.D. degree. Prelicensure course work is additional. No less than 15 quarter hours of postmaster's study shall be spent in residence at Rush University for the N.D. degree. Part-time doctor of nursing students must complete degree requirements within five years (60 months).

The doctor of nursing science degree requires completion of the approved individual program of study. Course work for the D.N.Sc. must be the equivalent of 125 quarter hours of graduate credit in addition to the completed dissertation. No less than 62 quarter hours of postbaccalaureate study shall be spent in residence at Rush University for the D.N.Sc. degree. No less than 35 quarter hours of postmaster's study shall be spent in residence at Rush University for the D.N.Sc. degree. No less than 20 quarter hours of post nurse doctorate study shall be spent in residence at Rush University for the D.N.Sc. degree. Part-time postbaccalaureate doctor of nursing science students must complete degree requirements within ten years. Post-masters students must complete degree requirements within five years (60 months).



COLLEGE OF HEALTH SCIENCES

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"The faculty of the College of Health Sciences, through the unification of their academic and operational responsibilities, strive to develop leaders for the future of health care in an array of the allied health professions and management. The hallmarks of scholarly excellence are the excitement of discovery, its communication to others and its application to the field. With faculty and students as colleagues, these are what we seek at Rush."

John E. Trufant, Ed.D.
Dean, College of Health Sciences
Vice President, Academic Resources

College of Health Sciences

The College

The College of Health Sciences, founded in 1975, is responsible for education and research in the allied health professions and management. More than six of every ten health care workers in the United States is in allied health. Over fifty separate categories of professionals comprise this largest segment of the health care workforce.

The faculty of the College of Health Sciences serve the Medical Center as practitioner-teachers. Nearly all have patient care or service responsibilities while concurrently filling academic roles as teachers and investigators. Through the faculty, therefore, the students have access to the latest treatment and practice patterns of skilled clinicians in a dynamic academic health center.

Mission

The primary mission of the College of Health Science of Rush University is to provide high quality educational programs for students in selected health sciences disciplines in order to prepare them for professional careers and/or further education. The faculty of the College, in recognizing the central role of the discovery of new knowledge to quality education, clinical excellence, and professional enhancement, foster research activities among themselves, their colleagues and their students; and, they encourage dissemination of the results through their writing and speaking in both internal and external forums. To develop the health team concept, the faculty encourages interdisciplinary activities in education, research and service. The faculty provide service to other programs through their educational and research activities. Contributions of professionals to the health care community are encouraged. Education and clinical components are integrated so that each has a positive effect on the quality and development of the other. Faculty strive to assure standards of excellence in their professions by achieving leadership positions, by pursuing and providing continuing education, by serving their communities, and by commitment to evaluating themselves, their programs and their organizational arrangements. The faculty and administration operate efficiently through responsible stewardship of resources in their care. Further, the faculty plans systematically for the future by monitoring trends and environmental conditions as they may impact the health sciences.

Organization

The organization of the College of Health Sciences centers around seven departments, each headed by a department chairperson. The chairpersons report to the college dean. The senior representative policy body of the College is the College Council, comprised of two faculty members from all of the departments and students from the College at large. Meetings of the Council are ordinarily held each month. Faculty and students may propose agenda items, and guests are welcome by invitation.

The seven departments of the college, each described later in this section, include Medical Technology and Perfusion Technology, which offers a bachelor of science degree. Five departments offer master of science degrees---Communication Disorders and Sciences, Clinical Nutrition, Health Systems Management, Medical Physics and Occupational Therapy. In addition, the College includes the Department of Religion, Health and Human Values, which offers internships in clinical pastoral education. The Section of Ethics is also organized as part of this department.

Alumni Activities

The College encourages the development of strong ties with its graduates. All graduates are considered alumni of Rush University, and no dues are levied. Each of the programs in the College of Health Sciences has its own alumni organization.

Academic Policies

(Additional policies are listed in the Academic Information section and in the program descriptions).

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term and most instructors give a final examination during this time. The quarter hour is the unit used by the College of Nursing, the College of Health Sciences, and The Graduate College to determine credit for courses taken. As a general rule, one quarter hour represents contact time of one lecture hour, two hours of small group discussion or three laboratory or clinical hours per week.

Transfer of Credit. Undergraduate courses taken at an accredited college or university that fulfill the prerequisites for admission may be applied toward the baccalaureate degree.

Graduate credit earned elsewhere may be applied to the master of science degree requirements for Rush, subject to the approval of the department chairperson. Before this credit may be approved to meet degree requirements, a transfer credit approval form must be completed. The form should be completed during the first quarter of enrollment in the degree program.

After matriculation, students who plan to request credit for courses taken elsewhere must either complete a transfer credit approval form or register for concurrent enrollment. Information regarding either of these options is available in the Office of the Registrar. Prior approval of the department chairperson is required.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. The credit will equal the credit value of the course as listed in the current *Rush University Bulletin*. Information that is posted on the transcript is the course prefix and number, title, credit value, and a K grade. A transcript guide that accompanies all transcripts issued by the office of the registrar explains that the K grade means credit was earned through proficiency examination. Credit for the course will appear in the quarterly and cumulative totals as credit earned. The credit is not calculated into the student's grade point average (GPA).

Full-time and Part-time Enrollment. Twelve quarter hours is considered full-time enrollment. Registration for fewer than twelve hours constitutes part-time enrollment.

Undergraduate Enrollment in Graduate Courses. With permission, undergraduate students may register for graduate level courses. Any credit earned in this manner will automatically apply toward the baccalaureate degree. Should an undergraduate student later apply for and gain admission to a graduate program at Rush University, the student may request that the graduate credit earned be applied toward the master's degree. A transfer credit approval form should be completed.

Credit will transfer in this manner only if the student has enough cumulative credits. A student must earn a minimum of 180 quarter hours to receive the bachelor of science degree. If a student actually earns 187 quarter hours, and seven quarter hours are at the graduate level at Rush, seven quarter hours could potentially be credited toward the master's degree.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time frame within which the student must complete such work.

An incomplete grade does not reflect upon the quality of the student's performance, and upon completion of the unmet course requirements, this grade will be replaced by the new grade. (See Academic Information section for additional requirements.)

Undergraduate Students. Students receiving grades of incomplete are responsible for asking the instructor the exact work required to remove the incomplete. The "I" grade must be removed by the end of the next quarter or it will revert to a failing (F or N) grade unless otherwise negotiated by the course director and student. If the student is not enrolled in other courses while completing the incomplete, the enrollment fee is imposed (see Financial Affairs section).

Graduate Students. Graduate students may request an incomplete from the course director. An incomplete grade not removed by the end of the next quarter will revert to a final grade as determined by the course director. If the student is not enrolled in other courses while resolving the incomplete, the enrollment fee is imposed (see Financial Affairs section).

Absences. Students are responsible for all material presented in class sessions. Faculty members are not obligated to provide extra help to students who miss or arrive late to classes. When illness or other special circumstances prevent attendance, the student is responsible for contacting the instructor (in advance, if possible) to plan for meeting the objectives on an individual basis. Students absent from an examination are responsible for notifying the course director according to the guidelines specified in the course syllabus. Failure to do so will result in a zero for that examination or an incomplete for the course as determined by the course director.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Dean's List. Undergraduate students earning a 3.5 (A=4.0) or higher GPA for at least twelve credits of classroom course work are given recognition by having their names placed on the Dean's List. The Dean's List is published at the beginning of each new quarter for work completed in the previous quarter.

Thesis. Several programs in the College of Health Sciences either require or have an option for a thesis project. Completing one's thesis is a significant academic accomplishment and acknowledges that the student has conducted an independent scientific investigation that will add to the knowledge in his/her field. All students are required to have their theses registered with University Microfilms, Inc. This process includes the publication of the thesis abstract, the microfilming of the thesis, and the copyrighting of the work. In addition, the original copy of the thesis is bound and becomes a permanent part of the collection of The Library of Rush University. The director of the Library of Rush University coordinates the process.

Leave of Absence. A student who must interrupt his/her studies for reasons of sustained ill health or compelling personal situations may apply for a leave of absence for a stated period of time, usually not to exceed one year. Leave of absence requests must be submitted in writing to the department chairperson or his/her designate. If approved by the department chairperson and dean, the student must satisfy the conditions of the leave before reentering and must comply with all policies, requirements, and course sequences in effect at the time of reentry. The student shall provide, to the administrator(s) who granted the leave, written notice of his/her intent to return.

The student will pay tuition and fees at the rate in effect at the time of reenrollment.

Readmission. Any student who has withdrawn from a program or has not been enrolled for two consecutive quarters or any dismissed student may apply for readmission by submitting an application for this purpose to the chairperson of the department to which he/she is applying. Applications for reenrollment must be received at least three months before the planned return. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements, and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment.

Student Appeals Process. A student wishing to appeal an academic decision should follow the process summarized below, in the sequence indicated.

1. Discuss and attempt to resolve the issue with the faculty member in question.
2. Discuss the issue with the department chairperson (or with the program director, if applicable).
3. Submit a written appeal to the student progress and promotion committee of the department.
4. Submit a written request for a hearing to the University Committee on Faculty and Student Appeals. The recommendation of this committee will be forwarded to the College Council and the dean for review and final determination.

Department of Clinical Nutrition

Philosophy

The primary mission of the Department of Clinical Nutrition is to develop clinical nutrition practitioners who are prepared to assume leadership roles in the profession of dietetics. The program is designed to teach students to integrate and apply principles of food, nutrition, and administrative services in order to improve the nutritional status of individuals and groups. The importance of maintaining a current knowledge base and incorporating new knowledge into practice patterns is emphasized throughout the program.

The philosophy of the department parallels that of the Medical Center in that the academic component is fully integrated with the health care function of the institution. The faculty is committed to excellence in teaching, research, and clinical care and strives to be visionary in meeting the future needs of the profession in a changing health care environment.

The Program

A two-track program having a common core of courses and leading to a master of science degree with a major in clinical nutrition is offered.

Track I is an 18-month dietetic internship/master's degree program that integrates didactic and practicum experience. Upon completion of the program the student is eligible to take the registration examination for dietitians.

Track II is designed for the registered dietitian who wishes to expand his/her understanding of advanced human nutrition, clinical management techniques, and the research process.

Admission Requirements. The student must hold a baccalaureate degree from an accredited college or university and provide evidence of having successfully completed a college course in basic statistics.

The generally applied minimum standards for acceptance into the program are a B average for undergraduate achievement and a combined verbal and quantitative score of 1000 on the Graduate Record Examination taken within the

last three years. In addition, evidence of work experience in food service systems and/or clinical dietetics is highly recommended.

Track I students must provide evidence of having completed the minimum academic requirements necessary for membership in the American Dietetic Association (designated as Plan IV/V).

Track II students must provide evidence of dietetic registration.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession.

Only grades of A, B or C fulfill degree requirements in all required courses except supervised experience in which a grade of B or above is required. A student who earns a C in a supervised experience must repeat the course. A grade of D or F in a supervised experience results in dismissal from the University.

Automatic probation results when a student's cumulative grade point average (GPA) falls below 3.0 or when a student receives a grade of F in any course other than supervised experience. The Committee on Academic Progress and Promotions notifies any student placed on probation, states the reason(s) for probation and the conditions that must be satisfied for removal of probationary status.

A student who earns a grade of D or F in a required course, except supervised experience, must repeat the course. Failure to earn a grade of C or better in a repeated course results in dismissal from the program. A student who earns a grade of D or F in two or more required courses will be dismissed from the University. In a repeated course, the new grade replaces the earlier D or F grade in the cumulative GPA.

Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater after completing the next 25 credit hours. Improvement in GPA must be demonstrated each quarter of probation.

Curriculum: Clinical Nutrition

Fall Quarter	Track I	Quarter Hours
NTR 521	Human Metabolism I	3
PVM 541	Biostatistics I	4
NTR 503	Management in Dietetics	3
NTR 511	Supervised Experience in Food Systems Mgmt. I	3
		<u>13</u>
Winter Quarter		
NTR 522	Human Metabolism II	3
NTR 582	Introduction to Research	3
NTR 583	Food Systems Operational Analysis	1
NTR 512	Supervised Experience in Food Systems Mgmt. II	3
		<u>3</u>
		<u>13</u>
Spring Quarter		
NTR 541	Interrelationships of Nutrition and Disease I	4
NTR 586	Applied Research Problem I	2
NTR 505	Advanced Clinical Nutrition I	3
NTR 513	Supervised Experience in Clinical Nutrition I	3
		<u>3</u>
		<u>12</u>
Summer Quarter		
NTR 542	Interrelationships of Nutrition and Disease II	4
NTR 587	Applied Research Problem II	2
NTR 506	Advanced Clinical Nutrition II	3
NTR 514	Supervised Experience in Clinical Nutrition II	3
		<u>3</u>
		<u>12</u>
Fall Quarter		
NTR 590	Special Topics	1
NTR 565	Seminar I	1
NTR 588	Applied Research Problem II	2
NTR 515	Supervised Dietetics Staff Experience	5
		<u>3</u>
		<u>12</u>
Winter Quarter		
NTR 566	Seminar II	1
NTR 574	Management in Nutrition Care Systems	3
NTR 592	Individualized Clinical Practice	1
	Electives	1
		<u>1</u>
		<u>6</u>
TOTALS		
	Required hours	64
	Elective hours	4
	Minimum Hours Required for Graduation	68

Curriculum: Clinical Nutrition

Fall Quarter		Track II	Quarter Hours
NTR 521	Human Metabolism I		3
PVM 541	Biostatistics I		4
	Electives		5
Winter Quarter			
NTR 522	Human Metabolism II		3
NTR 572	Nutrition Communication		3
NTR 582	Introduction to Research		3
	Electives		3
Spring Quarter			
NTR 505	Advanced Clinical Nutrition I		1-3
NTR 541	Interrelationships of Nutrition and Disease I		4
NTR 585	Applied Nutrition Research		2
	Electives		3-5
Summer Quarter			
NTR 542	Interrelationships of Nutrition and Disease II		4
NTR 585	Applied Nutrition Research		2
Fall Quarter			
NTR 565	Special Topics		1-3
NTR 585	Applied Nutrition Research		1
NTR 590	Seminar I		1-3
	Electives		1-5
Winter Quarter			
NTR 566	Seminar II		1
NTR 574	Management in Nutrition Care Systems		3
NTR 585	Applied Nutrition Research		1
TOTALS		Required hours	38
		Elective hours	16
		Minimum Hours Required for Graduation	54

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Full-time and Part-time Enrollment.

Track I (combined dietetic internship/master's degree program is offered on a full-time basis only. The program extends over six quarters including a summer session.

Track II (master's degree program for registered dietitians) is offered on a part-time or

full-time basis. The program may be completed in six quarters or longer, up to five years.

Graduation Requirements. A cumulative GPA of students I complete a minimum of 68 quarter hours within 36 months of the beginning of the first quarter of enrollment in the program.

Track II students shall complete a minimum of 54 quarter hours within five years of the beginning of the first quarter of enrollment in the program.

Research Activities

The faculty of the Department of Clinical Nutrition is involved in both basic and clinical research. This activity frequently is in collaboration with Rush Medical College faculty members in such departments as oncology, surgery or preventive medicine. A research laboratory is available to support faculty and student research.

Service Activities

The general internship/master's degree program is administered by the Department of Clinical Nutrition, Rush University. The major portion of the practicum experience is provided

within the facilities of the Food and Nutrition Services Department, Rush-Presbyterian-St. Luke's Medical Center. The academic service departments are organized under one director allowing full integration of operational and academic facilities/staff. This organizational structure provides unique opportunities for the merging of theory and practice within one institution.

In addition to the academic program, the department provides nutrition services to the hospital and to the outpatient area, operates five food service units within the Medical Center and provides leadership in nutritional support in critical care.

Department of Communication Disorders and Sciences

Philosophy

The basic tenet of the faculty in the Department of Communication Disorders and Sciences is that the professional education of speech pathologists and audiologists, who desire practice in hospitals or other health care facilities, is optimized by drawing upon patients, staff, and the physical resources of an academic medical center. In contrast to many professional training programs, the clinical skills of Rush students are fostered and matured through observation and supervision by practitioner-teachers. All faculty are certified by the American Speech-Language-Hearing Association (ASHA) and participate fully in the clinical process, serving patients that present a full range of communicative disorders. The curriculum meets ASHA standards for clinical certification, and close clinical supervision provides the necessary foundation for clinical education. Departmental faculty is supplemented by the expertise of physicians, scientists, and other health care personnel within the Medical Center. Additionally, the faculty's commitment to research and the belief that an appreciation of scientific matters is valuable to the clinical process and professional growth provides the basis for master's thesis research in the program.

Admission Requirements

Applicants should be eligible for the baccalaureate degree at accredited institutions at the time of application. The baccalaureate degree must be completed before commencing work at Rush University. An applicant's record must reflect successful completion of course work in at least the following content areas: introduction to communication disorders, introduction to audiology, introduction to psychology, phonetics and normal articulatory production, normal language development, speech and hearing science and clinical methods or practicum. Also, course work in the following content areas is strongly recommended: diagnostics, disorders of articulation, abnormal psychology, behavior modification, developmental psychology, physiological psychology, introduction to linguistics, computer science, statistics/mathematics, physics and English composition.

Admission typically is granted for the fall quarter of each year. The completed application file includes an application form, application fee, three letters of recommendation from individuals acquainted with the applicant's academic or professional background, official transcripts from all universities attended and official scores from either the Graduate Record Examination (GRE) or the Miller Analogies Test (MAT). The generally applied minimum standards for acceptance into the program are a 3.0 undergraduate grade point average overall (on a 4.0 scale) or a 3.5 in major courses in speech language pathology/audiology or a 3.5 in the prerequisite course content as listed in the application. The Admission Committee in the department reviews all applications and determines the applicants' eligibility.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections, as well as in the department's student manual).

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University. Appeal of dismissal must be made in writing to the department chairperson for consideration by the faculty.

Only grades of A, B, or C may fulfill degree requirements in all required courses as listed in the curriculum outline. Students will be considered in good standing at Rush University unless placed on academic probation. Due to the nature of the programs, clinical performance and classroom performance will be evaluated separately. Policies related to academic progression will be applied independently to clinical and didactic performance.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 and 2.99 (A = 4.0), inclusive, or whose cumulative GPA falls below 3.0. Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation

Curriculum: Audiology

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
SHS 501	Speech & Hearing Sciences I	3	SHS 526	Industrial Audiology	2
SHS 505	Audiology I	2	SHS 532	Advanced Hearing Aids	3
SHS 507	Neurological Bases of Speech and Hearing	3	SHS 589	Research Practicum	3
SHS 545	Anatomy and Physiology of Speech & Hearing	3	SHS 595	Case Presentation	1
SHS 546	Anatomy and Physiology Lab	1	SHS 520	Audiology Practicum V	3
SHS 585	Professional Issues I	1			12
SHS 516	Audiology Practicum I	1			
		14			
Winter			Winter		
SHS 502	Speech & Hearing Sciences II	3	SHS 548	Advanced Electrophysiologic Assessment	3
SHS 506	Audiology II	3	SHS 575	Issues in Counseling	3
SHS 531	Amplification for the Hearing Impaired	3	SHS 586	Professional Issues II	1
SHS 582	Introduction to Research	4	SHS 595	External Practicum	9
SHS 517	Audiology Practicum II	3			16
		16			
Spring			Spring		
SHS 533	Adult Aural Rehabilitation	3	SHS 595	External Practicum	15
SHS 543	Electrophysiologic Assessment of the Auditory System	4			15
SHS 553	Instrumentation for Hearing and Speech	3			
SHS 566	Pathophysiology of the Auditory System	3			
SHS 518	Audiology Practicum III	3			
		16			
Summer					
SHS 523	Sign Language	2	Total		104
SHS 534	Pediatric Aural Rehabilitation	3	Electives		2
SHS 544	Pediatric Audiology	3			
SHS 542	Electronystagmography	3	Minimum Hours Required for Graduation		106
SHS 550	ENG Lab	1			
SHS 519	Audiology Practicum IV	3			
		15			

must earn a cumulative grade point average of 3.0 or greater by the end of the next two consecutive quarters.

A student who earns a quarterly grade point average below 2.0 will be dismissed from the University. A student who earns a grade of less than C in a required course must repeat that course, an equivalent course, or an alternative course. Petitions in this regard will be reviewed

by the Curriculum Committee of the department with final approval or denial by the faculty. A student who earns a grade of less than C in two or more required courses may be dismissed from the University. In a repeated course, the new grade will replace the earlier failing grade in the cumulative GPA. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University.

Students placed on academic probation will be notified in writing by the department chairperson following a meeting of the faculty at which academic progress has been discussed. The letter will state the reasons for placing the student on academic probation and the specific requirements which must be met by the student to reestablish good standing.

Graduation Requirements

The master of science degree with a major in either speech-language pathology or audiology requires a cumulative GPA of 3.0 or greater and the successful completion of comprehensive examinations in order to graduate. All degree requirements must be completed within 48 months from the beginning of the first quarter in which the student is enrolled in the department. The minimum number of quarter hours required for graduation is 106.

Curriculum: Speech-Language Pathology

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
SHS 501	Speech & Hearing Sciences I	3	SHS 561	Articulation Disorders	4
SHS 505	Audiology I	2	SHS 568	Cognitive Disorders	3
SHS 507	Neurological Bases of Speech and Hearing	3	SHS 589	Research Practicum	3
SHS 545	Anatomy and Physiology of Speech & Hearing	3	SHS 597	Case Presentation	1
SHS 546	Anatomy and Physiology Lab	1	SHS 515	Speech-Language Pract. V	3
SHS 585	Professional Issues I	1			14
SHS 516	Speech-Language Pract. I	1			
		14			
Winter			Winter		
SHS 502	Speech & Hearing Sciences II	3	SHS 524	Fluency, Dysfluency, and Stuttering	3
SHS 556	Swallowing I: Diagnosis	1	SHS 575	Issues in Counseling	3
SHS 564	Aphasia	4	SHS 586	Professional Issues II	1
SHS 582	Introduction to Research	4	SHS 590	External Practicum	9
SHS 512	Speech-Language Pract. II	3			16
		15			
Spring			Spring		
SHS 533	Adult Aural Rehabilitation	3	SHS 590	External Practicum	15
SHS 551	Diagnostic Methods	3			15
SHS 553	Instrumentation for Hearing and Speech	3			
SHS 557	Swallowing II: Management	1			
SHS 565	Motor Speech Disorders	3			
SHS 513	Speech-Language Practi. III	3			
		16			
Summer					
SHS 522	Language Disorders in Children	3		Total plus Electives	104
SHS 558	Swallowing III: Instrumentation	1			2
SHS 562	Craniofacial Anomalies	3			
SHS 563	Voice Disorders	4		Minimum Hours Required for Graduation	106
SHS 514	Speech-Language Pract. IV	3			
		14			

Professional Certification

Programs in communication disorders and sciences provide the academic background necessary to begin the ASHA clinical fellowship year and for the national certification examinations.

Thesis

A master's of science thesis project is optional for both programs. The complete thesis policy is found in the department student manual.

Practicum

Supervised clinical practica occur each quarter during the seven-quarter program. A minimum of 37 quarter hours of clinical practicum is required. Enrollment in each quarter of practicum is contingent upon satisfactory completion (grade of C or better) of the previous quarter's practicum. These experiences include those at selected sites inside and outside of the Medical Center. Opportunities provide experiences with a full range of speech, language and hearing disorders. Students are able to express their preferences with regard to practicum sites outside the Medical Center.

Educational Activities

The Department of Communication Disorders and Sciences provides professional training in speech-language pathology and audiology. Its programs are two of the few in the United States

that base the education of speech pathologists and audiologists on the facilities and opportunities offered by an academic health center. In addition to teaching and supervisory responsibilities in the College of Health Sciences, faculty members are involved in educational programs of residents and students in the college of medicine. Faculty participate in grand rounds for various medical specialties and provide in-service programs for staff at Presbyterian-St. Luke's Hospital and at the Johnston R. Bowman Center for the Elderly.

Research Activities

Faculty are involved in independent and collaborative research in the areas of audiology, hearing science, and speech-language pathology. Students are encouraged to participate in the research process, including development of hypotheses, data collection, and presentation or publication of results.

Service Activities

The faculty provides a full range of diagnostic and therapeutic services to a large clinical population, both inpatients and outpatients. The faculty has demonstrated considerable expertise in developing specialized evaluative and treatment programs for the communicatively handicapped. Students and faculty participate in health fairs and screenings throughout the year.

Department of Health Systems Management

Philosophy

The Department of Health Systems Management was formally established in 1975. The department's goals are to provide a graduate program for future health systems managers; to provide postgraduate and continuing education for health systems managers; and to conduct research in order to validate and to further innovation in the management of health care services.

Admission Requirements

Prospective students should have a baccalaureate degree from an accredited college or university with basic course work in financial accounting and statistics. Courses in macro- and microeconomics and computer science are strongly recommended. Applicants are also required to submit scores from either the GMAT or the GRE and three confidential letters of recommendation.

Curriculum

Comprised of six academic quarters, the curriculum is designed to instruct students in the current theory and practice of health services management including the study of organizational behavior, quantitative and analytical techniques, planning, finance, and human resources management. The structure of the curriculum allows students the opportunity to apply managerial principles in real world learning environments and to design and conduct applied research projects.

Curriculum content focuses on:

- an understanding of health services administration through a study of health economics and medical sociology
- knowledge of individual social and environmental determinants of health, disease, and disability through a study of health measurement, patterns and characteristics of illness, health promotion, and disease intervention

- an understanding of management and administrative skills and their application to health services organizations through a study of organizational behavior, quantitative methods, budgeting, information systems, law, planning and policy development, marketing, manpower planning, personnel management, labor relations, multi-institutional arrangements, long-term care, ambulatory care, and managerial decision making

Academic Progression. All graduate students in the Department of Health Systems Management must achieve a grade point average of 3.0 (A=4.0) in all course work each quarter to maintain satisfactory academic status. Academic probation results when a student's grades fall below a quarterly or cumulative grade point average of 3.0 or when a student receives a grade of F in any course. Any health systems management student may be placed on academic probation when the student's academic deficiencies are significant as judged by the Committee on Academic Progress and Promotions. A student on academic probation shall remain so until he/she has remedied all deficiencies and met all requirements established by the committee for removal from academic probation.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Enrollment. The curriculum is offered on a full and a limited part-time basis. A full-time student is one who is registered for 12 or more hours of course credit per quarter leading toward a master's degree with a major in health systems management. The part-time student is one who is registered for four or more hours of course credit per quarter. The program must be completed within a five year time limit.

Curriculum: Health Systems Management

Fall Quarter		Year I	Quarter Hours
HSM 502	Health Care Organization I	G. Knepper	4
HSM 503	Health Care Organization II	S. Sohacki	1
HSM 506	Medical Sociology	M. Counte/D. Bliss	3
HSM 551	Information Systems I	D. Mon/ T. Buck	4
HSM 582	Intermediate Statistics	L. Thompson/C. Kantutis	4
Winter Quarter			
HSM 515	Human Resources Management I	J. Hill	4
HSM 533	Health Economics	G. Glandon	4
HSM 545	Organizational Analysis	J. Trufant	4
HSM 571	Operations Management	S. Keers	4
Spring Quarter			
HSM 507	Epidemiology	D. Oleske	4
HSM 531	Finance I	G. Gasbarra	4
HSM 543	Health Law	M. Brown	4
HSM 552	Information Systems II	B. Rose/R. Odwazny	4
Fall Quarter		Year II	
HSM 536	Corporate Finance	B. Koval	4
HSM 561	Strategic Planning	P. Douglass	3
HSM 597	Master's Project	D. Oleske	4
	Elective (<i>Choose one from the two listed</i>)		
HSM 534	Applied Economics	G. Glandon	3
HSM 560	Health Care Policy	I. Shannon	3
Winter Quarter			
HSM 532	Finance II	T. Jendro	3
HSM 562	Marketing Management	J. Carollo	4
HSM 597	Master's Project	D. Oleske	4
	Elective (<i>Choose one from the three listed</i>)		
HSM 557	Quality Assurance in Health Care	M. Terman	3
HSM 572	Advanced Operations Research	T.B.A.	3
HSM 576	Ethics for Health Care Management	R. Burke	3
Spring Quarter			
HSM 539	Finance Seminar	T.B.A.	3
HSM 546	Advanced Organizational Analysis	M. Counte/J. Short	4
HSM 595	Graduate Seminar	M. Sinioris/G. Glandon	1
	Elective (<i>Choose two from the six listed</i>)		
HSM 516	Human Resources Management II	J. Hill/B. Perret	3
HSM 535	Applied Economics II	G. Kaatz	3
HSM 553	Advanced Information Systems	T.B.A.	3
HSM 555	Health Care and the Elderly	Counte/Heelan/Glandon	3
HSM 558	Ambulatory Care Management	D. Bliss/B. Hinrichs	3
HSM 560	Health Care Policy	I. Shannon	3
TOTALS			
	Required hours		78
	Elective hours		12
	Minimum Hours Required for Graduation		90

The course offerings and instructors are subject to change

Graduation Requirements. To be eligible to graduate, a student must have successfully completed all the academic requirements of the Department of Health Systems Management and achieved a minimum cumulative grade point average of 3.0. In order to receive a master of science degree with a major in health systems management, the student must have earned a minimum of 90 quarter hours of credit. Prior to graduation, the Committee on Academic Progress and Promotions shall recommend to the entire department faculty for its approval those students who are to be awarded degrees.

Educational Activities

Members of the faculty have represented the institution by presenting papers or serving as members of the program faculty in symposia or seminars sponsored by the American Hospital Association, the Hospital Financial Management Association, the American College of Hospital Administrators, the Hospital Management Systems Society, the Illinois Hospital Association and many other professional groups. Each year the Department of Health Systems Management and the Center for Health Management Studies sponsor the Annual Rush Invitational Seminar on Hospital and Health Affairs. This past year's symposium, "Health Prophets: Past Lessons and Future Strategies" was attended by a record number of health care executives from across the nation.

Research Activities

The Center for Health Management Studies is the focus for the ongoing development of health services research in the Department of Health Systems Management and the Medical Center. Research enables Rush to continue its national prominence as an innovator and pioneer

in health care delivery. The output of the department's health services research can most effectively contribute to the evolution of public policy and to an environment of practice supportive of an efficient and effective health care delivery system. On occasion, students are given the opportunity to participate as research assistants to further develop their skills and perspectives.

The department sponsors monthly research seminars that provide a forum for health systems management faculty to present and discuss their research activities with interested students, faculty and practitioners from throughout the community.

Service Activities

Members of the faculty of the Department of Health Systems Management are actively involved in the operation of the Medical Center through such capacities as hospital administrator, health care planner, University administrator, financial manager, clinician, corporate and labor attorney, researcher, and data processing manager.

Individuals on the faculty, depending on their areas of expertise, frequently are asked to serve as consultants to hospitals, planning bodies, and other organizations.

Additional contributions to the health care field also include serving as faculty in continuing education programs for health service administrators sponsored by the American Hospital Association, the Hospital Financial Management Association, the American College of Health Care Executives, the Hospital Management Systems Society and the American Association of Medical Colleges.

Department of Medical Physics

Philosophy

The Department of Medical Physics offers two programs of study and research leading to graduate degrees. The faculty members of the division are active in theoretical and experimental research in medical physics and its clinical applications. The diversity of interests of the faculty allows the department to offer a program that can satisfy the interests and needs of students in several areas of medical physics: dosimetry, imaging applied to medicine, radiation sources, physics of radiation therapy, physics of diagnostic radiology, physics of nuclear medicine and radiation protection.

Career Opportunities

Medical physics is concerned with the application of the concepts, methods and forces of physics to the diagnosis and treatment of human disease. Medical physicists work at the forefront of medical science, often in hospitals with associated academic programs. They carry out research, give direct assistance to their medical colleagues and help train future medical physicists, resident physicians, medical students and medical technicians.

The Program

The master of science with a major in medical physics program is offered through the Department of Medical Physics. In order to produce well-rounded, highly competent medical physicists, the curriculum provides training in the physics aspects of radiation therapy, diagnostic radiology, nuclear medicine, radiation protection, and radiobiology, as well as in such subjects as anatomy, physiology, and computer science. The recommended curricular sequence follows.

Admission Requirements

The successful applicant must meet the following requirements:

- hold a bachelor of science degree with a major in physical science with a minor in physics from an accredited college or university
 - complete one year of college chemistry with laboratory. This requirement may be satisfied within the M.S. program.
 - earn an cumulative grade point average (GPA) of 2.5 (A = 4.0) in college work
 - earn a cumulative science GPA of at least 3.0 in college work
 - submit Graduate Record Examination (GRE) results achieved within the last three years
 - foreign students submit Test of English as a Foreign Language (TOEFL) results
 - supply three letters of recommendation from previous college or university instructors.
 - provide evidence of prior success in pursuing independent study.
 - write a description of his/her scientific research interests.
- Applicants holding a baccalaureate degree but with no graduate training should apply for the fall quarter to insure appropriate course sequencing. Such applications will be accepted until February 15 with notification to the applicant of admissions committee action no later than April 15. Later applications may be accepted on a space available basis.
- Students with graduate school or scientific research experience may apply for admission to begin study any quarter of the year. Such applications should be made at least two months prior to the start of classes for the quarter in question.
- hold a bachelor of science degree with a major in physics from an accredited college or university or

Curriculum: Medical Physics

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
MPH 461	Diagnostic Radiation Physics	3	MPH 463	MR Imaging	2
MPH 482	Therapeutic Radiation Physics	3	MPH 486	Hyperthermia	2
MPH 501	Radiation Physics	4	MPH 506	Clinical Physics Practicum	4
PHY 555	Physiology of Cell Homeostasis	3	MPH 575	Nuclear Science Techniques	2
		<u>13</u>	MPH 583	Monte Carlo Methods	2
					<u>12</u>
Winter			Winter		
MPH 457	Radiation Safety of Radiological Materials	2	MPH 465	Computer Imaging	2
MPH 484	Brachytherapy Physics	2	MPH 505	Radiation Physics Lab	3
MPH 502	Radiological Physics I	4	MPH 506	Clinical Physics Practicum	4
MPH 505	Radiation Physics Lab	2	MPH 598	Research	3
MPH 565	Transfer Function Analysis	2			<u>12</u>
		<u>12</u>			
Spring			Spring		
MPH 471	Physics of Nuclear Medicine I	3	MPH 542	Radiation Oncology	2
MPH 503	Radiological Physics II	4	MPH 581	Photo Dose Calculation	2
MPH 505	Radiation Physics Lab	2	MPH 598	Research	4
MPH 531	Radiation Biology	3			<u>8</u>
		<u>12</u>			
Summer					
ANA 465	Gross Anatomy	5		Total plus	76
MPH 506	Clinical Physics Practicum	2		Elective	4
		<u>7</u>		Minimum Hours Required for Graduation	<u>80</u>

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Only grades of A, B, and C may fulfill degree requirements in all required courses. Students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0

or 2.99 inclusive or whose cumulative grade point average falls below 3.0. Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters.

A student who earns a quarterly grade point average below 2.0 will be dismissed from the University. A student who earns a grade of D or F in a required course must repeat the course. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University. A student who earns a grade of D or F in two or more required courses will be dismissed from the University. In a repeated course, the new grade will replace the earlier D or F grade in the cumulative GPA.

Students placed on academic probation will be so notified by the department chairperson following a meeting of the Student Progress Review Committee. The letter will state the reasons for placing the student on academic probation and the specific requirements that must be met by the student to reestablish good standing.

Full-time and Part-time Enrollment. Although the faculty recommends full-time enrollment to maximize the opportunities available to students, part-time enrollment for all, or part, of the program may be arranged.

Graduation Requirements. The master of science with a major in medical physics program requires a cumulative grade point average of 3.0 or greater to graduate. All degree requirements must be completed within five calendar years from the beginning of the first quarter in which the student is enrolled in the program. The minimum number of quarter hours required for graduation is 80. Each student must develop and carry out a research project which culminates in the writing of a thesis.

At the end of the first year, the student must take and pass a qualifying examination based on selected basic principles of physics and course work taken to date. The examination will include both written and oral components. Passing this examination qualifies the student to continue work toward the master's degree. A final examination in defense of the thesis will be given at the end of the second year. Failure to pass the final examination will require determination by the faculty whether the student will be granted a second and last opportunity. Upon such recommendation, a second examination may be scheduled at a mutually determined time within nine months of the initial examination.

Professional Certification

This program provides the basis for certification as a radiological physicist by the American Board of Radiology.

Educational Activities

In addition to providing educational and research experiences for students in the master's program, the medical physics faculty members, most of whom hold joint faculty appointments in Rush Medical College, participate in the education of medical and other health professions students and residents.

Service Activities

Most faculty members are practitioner/teachers who provide patient care services through the facilities of Presbyterian-St. Luke's Hospital. Several faculty members also serve as medical physics consultants to a network of hospitals and health care centers in metropolitan Chicago.

Research Activities

Faculty members are active in theoretical and experimental research in medical physics and its clinical applications. This research includes the study of basic mechanisms by which radiation transfers energy to biological and chemical materials; the development of new techniques for directing and measuring various radiations used in the detection, diagnosis, and treatment of cancer; the application of radioactive tracers to diagnosis and to the study of metabolic processes; and the optimization of physical parameters for specific studies in diagnostic medical imaging including radiology, computerized radiography and tomography, radionuclide imaging, dosimetry in radiation protection, and radiobiology.

Department of Medical Technology and Perfusion Technology

Medical Technology Program

Philosophy

The contribution of medical technology to the patient and to the health care delivery system is primarily one of diagnostic services. The increasing number and wide range of diagnostic tests performed by medical technologists requires frequent adaptation to new laboratory methodologies and instrumentation. In turn clinical medicine requires today's medical technologist to be a highly qualified professional who is willing and able to expand and extend his/her theoretical knowledge and technical skills. Today's professional technologist must develop technical expertise as well as teaching and administrative competence. The technologist must be able to adapt to rapid changes in the field while maintaining an optimal level of performance. As a member of the health care team, the medical technologist must have a basic understanding of the role of other health practitioners in order to function effectively and best possible care to the individual and community. Although work in medical technology often does not place the practitioner in direct contact with the patient, the technologist must maintain compassion and empathy and accept the the patient's welfare as the highest priority.

It is the aim of the baccalaureate program in medical technology to educate technologists to meet effectively the changing needs of laboratory medicine.

Admission Requirements

Students wishing to apply to the medical technology program may do so in one of two ways. Students may attend either an accredited college of their choice or one of the schools affiliated with Rush University that offers preparation for medical technology. All applicants must complete the preprofessional requirements. Applicants from institutions that have no affiliation with Rush should apply to the medical technology program by March for admission in the fall. Students at an affiliated

school are recommended for admission to the Rush program by their health careers advisor at the affiliated school.

Of the 17 schools affiliated with Rush University, the following offer preparation for medical technology:

Beloit College, Beloit, Wisconsin
Carleton College, Northfield, Minnesota
Colorado College, Colorado Springs, Colorado
Cornell College, Mt. Vernon, Iowa
Fisk University, Nashville, Tennessee
Grinnell College, Grinnell, Iowa
Illinois Institute of Technology, Chicago, Illinois
Knox College, Galesburg, Illinois
Lake Forest College, Lake Forest, Illinois
Lawrence University, Appleton, Wisconsin
Macalester College, St. Paul, Minnesota
Monmouth College, Monmouth, Illinois
North Central College, Naperville, Illinois
Ripon College, Ripon, Wisconsin
Wheaton College, Wheaton, Illinois

Curriculum - Generalist

Preprofessional Program. The prehealth portion of the medical technology program is taken at an affiliated college or other accredited college or university and requires two or three years of study, depending upon the college. These years are devoted to preparing the scientific foundation upon which the practice of medical technology can be built. The first year emphasizes courses in biological, physical, and behavioral sciences, with options in the humanities. The succeeding prehealth years are used to increase depth in the sciences as they relate more specifically to health fields and to enhance personal experience by a broad choice of electives in the humanities.

Curriculum: Medical Technology Generalist

Fall Quarter	Junior Year	Quarter Hours	Fall Quarter	Senior Year	Quarter Hours
BCH 411	Clinical Biochemistry I	4	BCH 413	Clinical Biochemistry III	3
HEM 301	Hematology I	6	MTK 421	Practicum in Clinical Chem.	8
MTK 304	Basic Laboratory Skills	6	MTK 423	Practicum in Immunology	4
		<u>16</u>	MTK 441	Seminar in Medical Technology I	2
					<u>17</u>
Winter			Winter		
BCH 412	Clinical Biochemistry II	4	HEM 425	Hematology II	2
HEM 302	Intro. to Hemostasis	2	MTK 405	Clinical Laboratory Information Systems	2
IMM 301	Basic Immunology	3	MTK 422	Practicum in Hematology	8
MIC 311	Diagnostic Bacteriology	4	MTK 425	Practicum in Immunohematology	4
MTK 303	Body Fluid Analysis	5			<u>16</u>
		<u>18</u>			
Spring			Spring		
IMM 403	Clinical Serology	3	HSM 401	Health Care Management	3
IMM 431	Immunohematology	5	MTK 305	Patient Care Techniques	2
MIC 411	Parasitology, Mycology, and Virology	5	HEM 426	Hematology III	2
		<u>13</u>	MTK 424	Practicum in Microbiology	8
			MTK 442	Seminar in Medical Technology II	1
					<u>16</u>
Summer					
Courses may not be offered in sequence listed but all are required courses			Total Required Hours		96
			Prehealth Hours		90
			Minimum Hours Required for Graduation		<u>186</u>

Specific course offerings and requirements may vary from campus to campus due to curriculum offerings, scheduling, and course content. The following listing suggests the kinds of courses that normally are required before a student comes to the Rush campus:

Chemistry (including Organic and Quantitative Analysis.
Biology (including Microbiology)
Mathematics

Professional Program. In the junior and senior years the student integrates the theory of clinical medicine with the practice of clinical laboratory procedures, learning basic theory and skills in hematology, clinical chemistry, immunology, and clinical microbiology in the junior year, going on to more advanced courses in those areas in the

senior year. Senior students apply basic concepts as they rotate through the laboratories of Presbyterian-St. Luke's Hospital and affiliated hospitals. In addition, students are prepared to fill supervisory and teaching positions through courses in management and education.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

High academic performance in required courses is expected. Undergraduate students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to any student who earns a quarterly grade point average (GPA) below 2.0 (A=4.0) or whose cumulative grade point average falls below 2.0. Students placed on probation have two quarters in which to regain the status of good standing. Failure to do so will result in dismissal from the University. Medical technology students may receive no more than one D in the following courses each year to remain in the program:

BCH 412, 413
IMM 301, 403, 431
MIC 311, 411
HEM 301, 302, 425, 426
MTK 303, 304

An F grade in any of these courses will result in dismissal.

Work in all practicum courses must be at the C level or better. Any work in practicum courses below the level required for a C grade will result in an F grade. Courses in which an F grade is received may be repeated only once with the new grade replacing the F in the cumulative GPA. A second grade of F in a practicum course will result in dismissal. Any student who needs to repeat a practicum course must do so within one year.

Curriculum and Admission - Categorical Certificate Program

Candidates must have a baccalaureate degree from an accredited U. S. college or university in biology or chemistry. Those choosing chemistry must have 24 semester or 36 quarter hours of undergraduate chemistry courses. Hematology and immunology require 30 semester or 45 quarter hours in biology. The microbiology program requires 20 semester or 30 quarter hours of biology credits. Students educated outside the United States must have a bachelor's degree and have successfully completed a minimum of one year's college level work in a science curriculum at a U. S. accredited college or university. All transfer course from other than U. S. colleges or universities is subject to approval by Rush University.

The Program. Candidates can specialize in certificate programs in hematology, clinical chemistry, immunology or microbiology, and at the completion of the program, become certified by the American Society of Clinical Pathologists and/or by the National Certification Agency for Medical Laboratory Personnel as categorical specialists in one of these areas. Each certificate program is built around a core curriculum and individually designed didactic and practical

courses. All course work carries transferable college credit. The program length is nine months and includes extensive practical experience in the clinical laboratories of the Medical Center.

Curriculum: Categorical

HSM 401	Health Care Management
IMM 301	Clinical Immunology
MTK 304	Basic Laboratory Skills
MTK 305	Patient Care Techniques
MTK 405	Clinical Laboratory Information Systems
MTK 441, 442	Research Seminar I, II

Categorical Track Courses: 20 to 25 quarter

Graduates may continue in the generalists program and with one additional academic year, complete requirements for the bachelor of science degree with a major in medical technology.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Full-time Enrollment. The medical technology professional program requires full-time enrollment from September to June. In the senior year students spend 40 weeks in the clinical courses which extend beyond the scheduled quarter.

Certification. The comprehensive technical curriculum at Rush University prepares the student to enter the practice of medical technology. Graduates are eligible to take the National Certifying Examination given by the American Society of Clinical Pathologists, and, upon passing the examination, they become certified as medical technologists, MT(ASCP). Graduates are eligible to take any of the other national certifying examinations if they so desire.

Graduation Requirements. The bachelor of science degree with a major in medical technology requires a minimum of 180 quarter hours. This includes at least 90 quarter hours earned as a lower division student at an affiliated school or as a transfer student. A minimum of 45 quarter hours of academic credit shall be earned as an upper division student in academic residence at Rush University.

Candidates for the bachelor of science degree must earn a 2.0 cumulative grade point

average in all computed upper division credits taken at Rush University.

Participation in cap and gown at commencement exercises is expected of all graduates.

Educational Activities

The faculty of the section is responsible for providing both the didactic course work and the clinical experiences necessary for students to complete successfully all degree requirements for the bachelor of science with a major in medical technology. The program is accredited by the American Medical Association's Committee on Allied Health Education and Accreditation (CAHEA).

Research Activities

Faculty members of Medical Technology engage in either technical or educational research. Areas include biochemistry,

education, hematology, hospital administration, immunohematology, immunology, and microbiology.

The Section of Medical Technology supports and is involved in the administration of the Research and Teaching Laboratory. The primary function of the laboratory is to provide research facilities and equipment in support of faculty and student research projects.

Service Activities

Faculty members are actively involved in the clinical laboratories of Rush-Presbyterian- St. Luke's Medical Center, maintaining active research, supervisory, and clinical positions in their specialty areas. Several faculty members hold conjoint appointments in Rush Medical College and provide the laboratory medicine courses for the medical college curriculum.

Perfusion Technology Program

Philosophy

The Perfusion Technology program aims to provide students with both the scientific knowledge as well as the clinical experience in order to make them effective and successful perfusion technologists. The field of perfusion technology is a challenging and expanding profession. The perfusion technologist of today must be able to meet the daily demands of the operating room, be able to adapt to new technologies and uses for the extracorporeal circuit and be part of a profession growing beyond its traditional role in cardiovascular surgery and now encompassing other surgical and non-surgical specialties requiring the use of extracorporeal circuits, support devices or blood salvaging capabilities.

Admission Requirements

All applicants must have satisfactorily completed a minimum of 90 quarter hours in the pre-health curriculum at an accredited college or university. An emphasis on the sciences is preferred and some medical experience is desirable. Rush University does not offer the pre-health curriculum on its campus. No transfer credit is awarded for required coursework in which a grade of less than C has been earned. Required courses must be taken for a letter grade rather than a pass/fail option.

Suggested pre-health curriculum:

<u>Courses</u>	<u>Quarter Hours</u>
Mathematics	6
Biology	12
Chemistry	12
Physics	6
Social Sciences	6
Humanities	12
Electives	36

In addition, prospective students must also submit a letter signed by a cardiac surgeon or chief perfusionist verifying that they have witnessed a minimum of five (5) open heart procedures.

Curriculum

The curriculum in perfusion technology

combines scientific study with clinical experience. Students take courses in anatomy, physiology, pathology and pharmacology, often with students of Rush Medical College and the College of Nursing. The clinical experience includes participation in adult and pediatric open heart procedures at Presbyterian-St. Lukes Hospital and at affiliated hospitals.

The curriculum begins in the fall quarter and covers seven quarters, including one summer session (see curricular outline). Faculty include experienced perfusion technologists and cardiovascular and transplant surgeons, in addition to specialists from anesthesia, nursing, medical technology and other related health professions. A unique feature of the program is the emphasis on management techniques as they relate to the administration of the hospital perfusion department. Graduates of the program will be qualified to sit for the certification examination of the American Board of Cardiovascular Perfusion.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

High academic performance in required courses is expected. Undergraduate students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to any student who earns a quarterly grade point average (GPA) below 2.0 (A=4.0) or whose cumulative grade point average falls below 2.0. Students placed on probation have two quarters in which to regain the status of good standing. Failure to do so will result in dismissal from the University.

Academic Policies

The Perfusion Technology program requires full-time enrollment beginning with the fall quarter of the junior year and continuing through the spring quarter of the senior year, a total of seven consecutive quarters of classroom work and clinical experience.

Suggested Perfusion Technology Curriculum

Fall Quarter		Junior Year	Quarter Hours
NUR 344	Anatomy		4
PHY 555	Physiology of Cellular Homeostasis I		3
PVM 541	Biostatistics I		4
PRF 301	Introduction to Perfusion Technology		2
Winter Quarter			
NUR 341	Microbiology		2
PHR 301	Introduction to Pharmacology		3
PHY 556	Physiology of Cellular Homeostasis II		3
PRF 320	Bioinstrumentation		3
PRF 311	Junior Seminar I		2
Spring Quarter			
NUR 382	Introduction to Research		2
NUR 529	Pharmacology		2
PRF 302	Pathophysiology of Cardiopulmonary Bypass I		5
PRF 312	Junior Seminar II		2
Summer Quarter			
PRF 431	Clinical Experience I		8
PRF 303	Pathophysiology of Cardiopulmonary Bypass II		5
PRF 313	Junior Seminar III		2
Fall Quarter		Senior Year	
PTH 501	Pathology I		5
PRF 401	Perfusion Technology I		3
PRF 432	Clinical Experience II		8
Winter Quarter			
PTH 502	Pathology II		2
PRF 402	Perfusion Technology II		3
PRF 433	Clinical Experience III		8
PRF 411	Senior Seminar I		2
Spring Quarter			
PRF 403	Perfusion Technology III		3
PRF 434	Clinical Experience IV		8
PRF 412	Senior Seminar II		2
		Total Perfusion Technology credits	96
		Pre-health credits	90
		Total hours for B.S. degree	186

Educational Activities

The faculty of the department is responsible for providing both the didactic course work and the clinical experiences necessary for the Bachelor of Science degree with a major in perfusion technology.

Service Activities

Faculty members are board certified perfusionists actively involved in the daily clinical activities of the Department of Extracorporeal Services.

Department of Occupational Therapy

The Department of Occupational Therapy offers a graduate program which prepares the student for unique contributions to the field of occupational therapy. This professional-level program is designed for individuals with baccalaureate degrees in other fields who are seeking to become occupational therapists at the graduate level.

Philosophy

The faculty of the graduate program in occupational therapy emphasizes the educational approach which integrates occupational therapy and didactic material with clinical instruction and practice. The purpose of this educational philosophy is to allow the student maximum opportunity for the highest levels of integration of content and understanding of rationale for instruction. This philosophy is fostered through such concurrent sequencing of theory and clinically based experience that the student is able to relate to either or both environments depending upon which best facilitates the learning process. The early and continuous collaboration between the theoretical and the clinical learning environments allows for the development of a collegiality between faculty and students. Through such a relationship, the student's personal growth and opportunities for independent thinking are fostered. Since the program is concerned with the student as an individual, the relationship with faculty provides the student with a variety of individualized learning options and experiences within diversified work environments.

Professional Description

Educational Orientation. The professional graduate program at Rush University is designed for the student who has acquired a variety of life experiences through previous educational, vocational, and avocational activities. The program facilitates the incorporation of these life experiences into the educational activities of the program. The educational philosophy utilized in the program which best addresses these spheres is based on theories of adult learning. By basing the program on adult learning theories, it is possible to build on the students' past, connect it to their activities of the present, and predict a future of competent, capable responses to the needs of the profession. The program is designed to enable the student to learn not only

the content and theories of occupational therapy, but also the process of utilizing the multiple resources of the learning environment, including teachers and peers. A series of carefully designed learning experiences, occurring within and outside the classroom, promote independence in conjunction with collegial interaction, problem solving and clinical reasoning, and analysis and synthesis of information. The graduate is a competent therapist who has maintained initial curiosity and has added to it through increased ability for creative thinking. Because of experiences in self-directed learning and in self-identification of needs, the graduate is able to be responsible and responsive to the needs of the profession. The graduate is a potential learner in the field who is able to work in the traditional settings of occupational therapy, but, more importantly, the graduate is flexible, autonomous, and informed so as to adapt to the practice of the field in nontraditional settings.

Professional Orientation. Since the Rush graduate will be prepared to work in a variety of traditional and nontraditional settings, his/her practice base is the result of broad experiences within the many arenas of occupational therapy. The graduates have the ability to add increasing amounts of depth and validation to their treatment programs as a result of their involvement and experiences with problem solving approaches to therapy. Given the combination of breadth and depth of knowledge and experience related to occupational therapy treatment, the primary strength of Rush University graduates will be their ability to function as highly resourceful clinicians. The role of the clinician is the core of all occupational therapy, as it was in the past and as it is projected for the future. The practitioner who is able to base treatment on established fact, internal and external resources, clinical reasoning and problem solving is the practitioner who will contribute to the credibility and viability of the profession. It is this type of practitioner who is expected to be the product of the Rush program. The graduates of the program are able to enter the clinical arena competent and confident of their clinical skills and also able to expand upon those skills as individual situations require it. This continuous process of assessing a situation and expanding upon it contributes to the ongoing personal and professional growth which is vital to occupational therapy. The role of the clinician, as

Curriculum: Occupational Therapy, Professional Curriculum

Summer Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
ANA 465	Gross Anatomy	5	HSM 545	Organizational Analysis	2
OCC 582	Computer Application	3	OCC 513	O.T. Interventions III	5
		<u>8</u>	OCC 518	Interventions III Fieldwork	1
			OCC 533	Prin. & Methods of Supervision	3
			OCC 545	O.T. Management in the Health Care System	3
			OCC 585	Research Proposal	3
					<u>17</u>
Fall			Winter		
OCC 461	Health and Development	3	OCC 595	Advanced Fieldwork	1
OCC 463	Principles of Movement	3			<u>1</u>
OCC 501	Activity Theory and Skills	4			
PSY 501	Intro. to Psychopathology	3			
		<u>13</u>			
Winter			Spring		
NEU 501	Introduction to Neuroscience	4	OCC 595	Advanced Fieldwork	1
OCC 465	Group Dynamics	3	OCC 598	Research Implementation (Thesis)	3
OCC 502	O.T. History and Philosophy	3			<u>4</u>
OCC 535	Issues & Perspectives in the Treatment of Children	3			
		<u>13</u>			
Spring			Summer		
OCC 506	Medical Conditions Seminar	3	OCC 590	Advanced Practice Seminar	6
OCC 510	Special Topics Seminar	3	OCC 598	Research Implementation (Thesis)	3
OCC 511	O.T. Interventions I	5			<u>9</u>
OCC 516	Interventions I Fieldwork	1			
OCC 541	Tests & Measurements in O.T.	4			
		<u>16</u>			
Summer					
HCE 581	Introduction to Research	4		Minimum required for graduation. Elective courses are optional and may be taken at the student's discretion.	97
OCC 512	O.T. Interventions II	5			
OCC 517	Interventions II Fieldwork	1			
OCC 521	Etiology of Occupation	4			
OCC 531	Prin. & Methods of Education	2			
		<u>16</u>			

it is understood in this context, incorporates other major roles of the therapist. The involvement of the student in these other roles is another major strength of the program. The additional roles of educator, manager, and researcher cannot be separated from the practitioner's role. As the Rush program is designed, the students have, in

the context of their studies, the opportunity to explore the functions of the therapist as an educator, researcher and manager in terms of how they are employed by the practitioner.

Curriculum: Occupational Therapy - Part Time Schedule

Summer		First	Year	Fall	
ANA 465	Gross Anatomy	5	OCC 533	Activity Theory and Skills	3
OCC 582	Computer Application	3	OCC 461	Health and Development	4
		<u>8</u>			<u>7</u>
Winter		Spring			
NEU 501	Introduction to Neuroscience	4	OCC 506	Medical Conditions Seminar	3
OCC 502	O.T. History and Philosophy	3	OCC 510	Special Topics Seminar	3
		<u>7</u>			<u>6</u>
Summer					
OCC 521	Etiology of Occupation	4			
OCC 531	Prin. & Methods of Education	2			
		<u>6</u>			
Fall		Second	Year	Winter	
OCC 463	Principles of Movement	3	OCC 465	Group Dynamics	3
PSY 501	Intro. to Psychopathology	3	OCC 535	Issues & Perspectives in the Treatment of Children	3
		<u>6</u>			<u>6</u>
Spring		Summer			
OCC 511	O.T. Interventions I	5	HCE 581	Introduction to Research	3
OCC 516	Interventions I Fieldwork	1	OCC 512	O.T. Interventions II	5
OCC 541	Tests & Measurement in O.T.	4	OCC 517	Interventions II Fieldwork	1
		<u>10</u>			<u>9</u>
Fall		Third	Year	Winter	
HSM 545	Organizational Analysis	2	OCC 595	Advanced Fieldwork	1
OCC 513	O.T. Interventions III	5			
OCC 518	Interventions III Fieldwork	1			
OCC 533	Principles & Methods of Supervision	3			
OCC 545	O.T. Management in the Health Care System	3			
OCC 585	Research Proposal	3			
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Spring		Summer			
OCC 595	Advanced Fieldwork	1	OCC 590	Advanced Practice Seminar	6
OCC 598	Research Implementation (Thesis)	3	OCC 598	Research Implementation (Thesis)	3
		<u>4</u>			<u>9</u>

Ninety-seven quarter hours required for graduation

Admission Requirements. The applicant to the professional program in occupational therapy must have completed or must show evidence of the following in order to be considered for admission:

- a baccalaureate degree from an accredited college or university
- recommended undergraduate grade point average (GPA) of 3.0 (A=4.0)
- Graduate Record Examination results within the last five years
- three letters of reference
- a personal interview with members of the occupational therapy faculty or designated substitutes
- a statement of familiarity with occupational therapy in the form of observational, volunteer, or work experience
- an essay describing why occupational therapy has been chosen as a career and what is expected of a graduate program
- prerequisite courses, as follows:
 - statistics
 - human growth and development
 - psychology (two courses)
 - introductory sociology or anthropology
 - human anatomy
 - human physiology

Academic Progression

The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Only grades of A, B, or C may fulfill degree requirements in all required courses. Students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 and 2.99, inclusive, or whose cumulative GPA falls below 3.0. Full-time students placed on probation must earn a cumulative grade point average of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters.

A student who earns a quarterly GPA below 2.0 will be dismissed from the University. A student who earns a grade of D or F in a required course must repeat the course. Only two required courses may be repeated in the professional program. A required course may be repeated only once and the new grade will replace the earlier D or F grade. Failure to earn a grade of C or better in a repeated course will

result in dismissal from the University. Only one D or F grade is allowed in a given academic year.

Students placed on academic probation will be so notified by the program director following a meeting of the departmental Progress and Promotions Committee at which academic progress has been discussed. The letter will state the reasons for placing the student on academic probation and the specific requirements to be met by the student to reestablish good standing.

Any deviation from these policies must be approved by the departmental Progress and Promotions Committee.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Full-time and Part-time Enrollment. The full-time academic program is a 27-month program covering nine academic quarters. A minimum of 96 credits is required for graduation. Instruction is provided by occupational therapy faculty and faculty members from other departments and colleges within the University.

Completion of all courses may take 39 months, on a part-time basis, but the final 12 months must be conducted on a full-time basis. All degree requirements must be completed within 36 months for full-time students and 42 months for part-time students from the beginning of the first quarter in which the student is enrolled in the program. To be considered part time, a student must be enrolled for a minimum of three credits and fewer than 12 credits per quarter. A minimum of 97 credits is required for graduation.

Scheduling. Courses are scheduled daily, Monday through Friday, with occasional weekend classes.

Fieldwork/Practica. Preclinical experiences, i.e., part-time fieldwork, occur as part of each of the occupational therapy intervention courses. Because the University is part of an academic health center, additional clinical experiences are arranged as a component of other courses when necessary.

Six months (two academic quarters) of full-time fieldwork is a requirement of the program. Fieldwork experiences are arranged when possible by mutual agreement of students and faculty and occur at selected sites inside and outside of the Medical Center. Students may choose to extend the program by one quarter during which time they may have an additional fieldwork experience.

Accreditation and Certification. The Occupational Therapy program is accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association in conjunction with the American Occupational Therapy Association. Graduates will be able to sit for the national certification examination for the occupational therapist administered by the American Occupational Therapy Certification Board (AOTCB). After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). In Illinois, occupational therapists must be licensed in order to practice and state licensure is based on the results of the AOTCB Certification Examination. This is true in many other states but specific requirements for licensure may be determined by contacting individual state licensing boards.

Graduation Requirements. The master of science with a major in occupational therapy requires a cumulative grade point average of 3.0 or greater to graduate. All degree requirements must be completed within 36 months for full-time students and 42 months for part-time students from the beginning of the first quarter in which the student is enrolled in the program. The minimum number of quarter hours required for graduation is 97.

Educational Activities

The Department of Occupational Therapy provides professional training for those seeking to become occupational therapists and for those who are experienced in the field and interested in advanced studies. The program prepares individuals to enter or return to the professional community to practice the skills of occupational therapy, basing that practice on a full understanding of the foundations and principles of the field, and to engage in research and educational activities to enhance further the theory and practice of occupational therapy.

Faculty members within the Department of Occupational Therapy have teaching and supervisory responsibilities for the master of

science degree programs in the College of Health Sciences. In addition, faculty members are involved in integrating the theoretical and clinical aspects of occupational therapy through the implementation of programs with diagnostic and development groups in the various occupational therapy units of the Medical Center.

Research Activities

Members of the department are increasingly involved in identifying research projects in occupational therapy. Faculty members are investigating extended applications of occupational therapy techniques with developmental and diagnostic groups for which there is minimal documentation. These investigations include developing screening instruments and corresponding assessment tools for pediatric, geriatric, psychiatric, and physical rehabilitation populations; investigating alternative methods of occupational therapy interventions with identified populations; and determining the validity, reliability, and applicability of both evaluation and treatment approaches. Research activity is also occurring in areas related to departmental productivity and interdepartmental relationships. Other faculty are involved in educational research arenas which includes the study of admissions processes; clinical supervision; clinical student performances; and educational needs of practicing therapists.

Service Activities

Members of the department provide a full range of assessment and therapeutic services for a variety of diagnostic and developmental populations. Occupational therapy services cover acute and chronic inpatient and outpatient psychiatry; pediatrics, including neonatology, developmental disorders, behavioral and emotional disorders, and learning disabilities; adult physical rehabilitation; geriatrics; and alcohol intervention programs. There are several subunits within each of these areas, and, within each unit, therapists utilize innovative occupational therapy interventions.

Department of Religion, Health and Human Values

About the Department

The Department of Religion, Health and Human Values provides the programs and resources for the study of human values, including ethics, comparative religion, spirituality, death and dying, etc., and preparation for careers in healthcare ethics and clinical chaplaincy. The Bishop Anderson Professorship was established more than twenty years ago to further research and teaching in the area of religion and medicine.

Following the practitioner-teacher model, the Department has two main sections: Health and Human Values and Religion and Health, with all faculty serving as active clinicians in their respective fields.

Health and Human Values

This section currently offers a *Certificate of Graduate Study* in the Area of Healthcare Ethics, and is preparing other certificate and degree programs for the near future.

The certificate program in ethics is staffed by highly qualified, doctorally prepared ethicists most of whom also practice medicine, nursing, or chaplaincy. The program requires one year of part-time study to complete, and covers ethical theory, policy, special topics--such as euthanasia, resource allocation, withholding or withdrawing life-sustaining technologies, etc.--all integrated with clinical practice. The certificate program meets every Wednesday evening of each of three academic quarters, and consists of REL 501, 502, and 503. Admission is usually extended to active professionals in healthcare who have a minimum of a bachelors degree.

Other academic work in this section includes seminars in death and dying, women and healthcare, cross-cultural issues in healthcare, healthcare and popular culture, faith and illness, and others.

This section is also the location of the "Ethics Consultation Service" for the Medical Center, providing for 24-hour-a-day availability of staff ethicists to practicing health care professionals.

Research in health and human values currently centers on patient preferences toward

advance directives, attitudes and practices of clinicians concerning DNR orders, and preferred models used by practitioners for ethical decision-making.

Religion and Health

This section offers a *Clinical Fellowship in Psychiatry and Religion* as well as *Clinical Pastoral Education*. Faculty, Residents and Interns provide 24-hour, 7-days-a-week chaplaincy services to patients, families and staff.

The Fellowship in Psychiatry and Religion is offered in conjunction with the Department of Psychiatry and provides opportunities for practicing professionals in either religion or psychiatry (or other mental health profession) to gain valuable knowledge and experience in the integration of the two disciplines in a clinical setting. The didactic portion of the fellowship is focused on Fridays, with the clinical portion open to negotiation according to the student's scheduling needs. The year-long program requires three academic quarters to complete. The orientation of the program lies in both self-psychology and family systems therapy.

The CPE program, accredited by the Association for Clinical Pastoral Education, provides basic, advanced, and on occasion supervisory, education in pastoral care. While oriented to graduate theological students, pastors and members of religious orders, it is open also to health professionals and lay persons who are interested and involved in pastoral care (chaplaincy) in the midst of health crisis. Under faculty supervision students carry responsibilities for interfaith ministry in direct patient care on specified nursing units. Usually students use the program to prepare for parish ministry, chaplaincy or pastoral counseling.

Basic CPE is an intensive 11-13 week introduction to pastoral care which focuses on the interface between and among the student, the patient/family, staff, treatment setting, and larger political/policy context, striving to achieve an understanding of the interaction between approaches to faith and the behavioral sciences in the interpretation of the human condition especially as encountered in healthcare.

Residency in CPE is a year-long program for persons who have completed their basic theological degrees, have some pastoral experience, and who want to specialize in pastoral care. Certification in the College of Chaplains, Inc., for instance, requires such a residency (or its equivalent). Residents, who are hired on a one-year basis as members of the clinical staff of the department, focus on areas of speciality such as oncology, gerontology, pediatrics or HIV+/AIDS.

Research in this section currently focuses on spiritual assessment issues in oncology and HIV+/AIDS, attitudes of religious leaders toward CPE, and correlation studies of various personality inventories with professional formation.

Special Activities

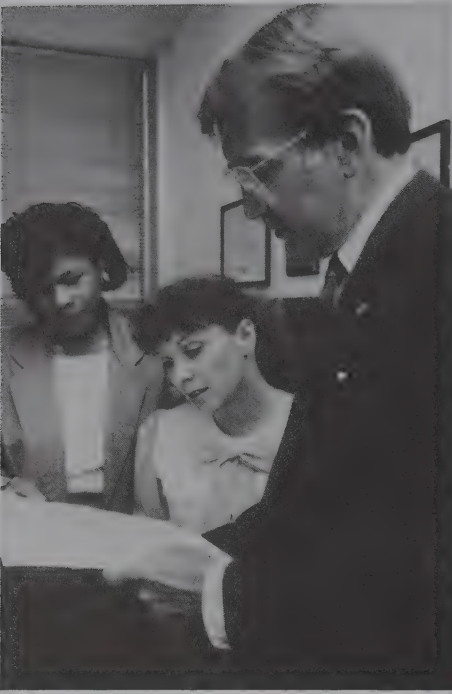
The Department is the home of *The CareGiver Journal*, a publication of the College of Chaplains, Inc. In addition, members of the faculty have collectively published (or have in press) approximately ten books and almost 100 chapters or articles.

The Department hosts conferences and training events for pastoral care professionals and regularly participates in continuing education conferences across the healthcare disciplines.



THE GRADUATE COLLEGE

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*John E. Trufant, Ed.D.
Dean, The Graduate College
Vice President, Academic Resources*

"Great discoveries in health and medicine emanate from those who have the curiosity, the knowledge and the discipline to seek the truth. They must also have the wisdom to synthesize the meaning of their work and the skill to transmit it. Through collegiality in education and scientific investigation, The Graduate College faculty seeks to develop outstanding scholars who possess these critical characteristics."

The Graduate College

Mission

The primary mission of The Graduate College of Rush University is to promote and assure excellence in educational programs in selected disciplines of the medical sciences. The Graduate College promotes cooperative efforts in achieving high quality educational and research programs to prepare students for successful careers and lifelong professional development.

Philosophy

The Graduate College has been established to provide opportunities for students to work with selected members of the University faculty to earn graduate degrees with emphasis on the doctoral level in many of the sciences basic to health care. This limited goal, coupled with highly individualized programs, maximizes the students' opportunities for self-realization and the faculties' opportunities for sharing their scholarly development, expertise, and experiences on a personal basis. The organizational pattern allows a high degree of faculty and student participation in the educational affairs of the college. Each division's faculty members are active in basic medical research and education, providing opportunities for the advanced student to engage in a research program leading to the degree of doctor of philosophy.

The Graduate College faculty strives to provide individualized and flexible scholarly paths for its students. It avoids arbitrary imposition of uniformity and the encumbrance of unnecessary formality while simultaneously maintaining educational excellence. The faculty believes that such an environment permits independent thinking and high motivation for students' continued learning. Achievement of such a climate requires adaptation to the needs of students with the limitation in numbers of students implicit in such an approach.

Program

The Graduate College prepares students for the master of science and doctor of philosophy degrees. The doctor of philosophy is awarded in recognition of high achievement in a particular field of scientific research as evidenced by submission of a dissertation that demonstrates the power of independent investigation and contributes to the body of existing knowledge. An

undergraduate record of scholastic excellence is an important background for The Graduate College experience.

The Graduate College also provides excellent research and training opportunities for advanced students who want to enroll concurrently in the The Graduate College and in Rush Medical College.

The process of application review includes a search for evidence of creativity and scholarly potential in the applicant. Nondegree students are not admitted with advanced degree objectives and are ineligible to become candidates for advanced degrees. Upon approval by a course director, any individual may audit a course.

In all cases, a student considering application for admission should first establish contact with the director of his/her choice of program to determine divisional requirements.

The student must meet all of the requirements for progress and graduation in the division's graduate studies program. In this regard individualized studies will be programmed to meet the student's need in achieving essential knowledge in preparation for these requirements.

Admission. The faculty of The Graduate College encourages diversity among the student population and therefore, seeks to admit persons from various backgrounds. The Graduate College uses the following guidelines to evaluate candidates for admission. Individual divisions within the college may have additional requirements and criteria for admission. Applicants are encouraged to check with the division of interest first. The college's requirements are as follows:

1. All applicants must have earned at least a bachelor's degree or its equivalent.
2. A cumulative grade point average of 3.0 on a 4.0 scale, or equivalent, from the most recent degree is required.
3. All applicants are required to take the Graduate Record Examination (GRE) aptitude test and have their scores submitted. A combined score for the verbal, quantitative and analytical sections of 1,500 is desirable.
4. All applicants whose native language is not English are required to take the Test of English as a Foreign language (TOEFL). A minimum score of 530 is required.

5. Each applicant is required to have three letters of recommendation submitted.
6. Specific admission requirements may be waived by the Graduate College Council. These will be addressed on a case by case basis.

Applicants who consider themselves to have a special or unique qualities that make themselves strong candidates for graduate education are also encouraged to apply. Research and related job experience are valued highly in the admissions process and will be taken into account. Interviews with applicants are encouraged and can play a significant part in the admission decision. Beyond those measures, the faculty attempts to determine the applicant's motivation and potential for advanced study and a research career in the sciences. In many cases, an on campus interview will be required.

Once the admissions office has received all required documents, including the application fee, it forwards the application to the division for review. If the division does not wish to offer admission to the applicant, the division makes that recommendation to the dean, who notifies the applicant of the decision. If an applicant meets all the college and division admission criteria and the division agrees to admit the student, the admissions office is notified and the dean writes to the applicant. If an applicant does not meet the college criteria as outlined above but the division wishes to admit the student, the applicant's admission materials are sent to the members of The Graduate College Council, where a review of the applicant takes place and an agreement to accept or reject is made following a presentation to the candidate to the Council by the division. The dean then notifies the applicant of the Council's decision.

Organization. The Graduate College is one of four colleges of Rush University. In order to carry out its educational mission, the college is organized into divisions; each division represents a separate discipline and each is related to its parent academic department. Currently, the college has the following seven divisions: anatomical sciences, biochemistry, immunology, medical physics, pharmacology, and psychology. Graduate study in microbiology, currently emphasizing virology, is offered within the division of immunology. One additional division has been formed in cell biology; however no degree is offered in this field. The graduate education; their continued existence is entirely dependent upon their demonstrated ability to provide such education at high levels of excellence. The primary goal of each division is

to provide excellent graduate education in the sciences basic to medicine. The divisions of The Graduate College are flexible and responsive to changing needs and experiences in their disciplines. To that end, the divisions are headed by directors who serve for definite terms of appointment and whose reappointments are subject to periodic review. Each division reports through its director to the dean of The Graduate College and is a member of The Graduate College Council.

The Graduate College Council is the senior representative body of the college. Its membership includes all division directors, three faculty members elected annually at-large from different divisions and two students elected by the students annually. The dean serves as the chairman of the council. The council is responsible for the admission of students; the formulation and adoption of general operating policies, standards and procedures of the college; the appointment of graduate college faculty and the approval of those recommended for degrees. Although the dean and the Council hold ultimate responsibility for programs of The Graduate College, the divisions of graduate study retain significant authority in structuring and administering their programs.

The faculty of The Graduate College is drawn from the faculty of the other colleges of Rush University. No faculty member has a primary appointment in The Graduate College. No ranks as associated with appointment to the faculty, and all faculty in The Graduate College are designated Members.

Doctor of Philosophy. The degree of doctor of philosophy (Ph.D.) is the highest earned degree conferred by Rush University. The Ph.D. is restricted to those scholars who have demonstrated superior ability in a recognized academic discipline.

While each division has identified requirements, the Ph.D. degree is not awarded following the completion of any specific number of formal courses nor on the basis of miscellaneous course studies and research. The entire Ph.D. program must be integrated and should be highly research-oriented. It should culminate in a work of literary and scholarly merit, which is indicative of the candidate's ability to conduct original research in a recognized specialty. Ph.D. programs are directed by selected faculty who work closely with graduate students. In practice, each program is composed of formal courses, guided individual study in a chosen field or discipline, study in such cognate subjects as may be required by the candidate's advisory committee, and original research that serves as the basis of a scholarly dissertation.

Program of Study. Each student in The Graduate College shall have a written program of study that establishes clear expectation regarding the course of the student's graduate experience. The program of the student should be developed and signed by the division director and the student not later than the end of the first quarter of enrollment. Changes may be made in requirements with the student's agreement or the agreement of the Division's Graduate Advisory Committee.

Thesis and Dissertation. A master's student must complete a thesis; a doctoral student must complete a dissertation. Both are developed through faculty-guided independent research projects.

Review of a theses or dissertation will follow the sequence of steps described in the manual, *Preparation of Theses and Doctoral Dissertations*. Copies of this manual are available in each graduate division and in the Library of Rush University. Each thesis or dissertation must be original and cannot have been used to meet the requirement of any other degree, either at Rush University or any other university.

Each student will have a Dissertation Committee whose role is to assure that the student's dissertation is of high quality and meets the standards of the division, the college and the university for originality, contribution to the field and scholarly presentation. The Committee is also to assure that the student is making satisfactory progress toward completion of the dissertation. Additional policies on the Dissertation Committee are available from division directors or the dean's office.

At or near the completion of the dissertation, each student will share with the academic community at large the knowledge that the student has developed through a public presentation. Students are responsible for posting announcements on institutional bulletin boards of the presentation that contain the title of the dissertation, the student's name, and the location, date and time at least two weeks prior to the presentation. This public presentation must precede the final approval of the dissertation by the Dissertation Committee.

Academic Progression. Specific regulations governing the process which results in final awarding of the degree are developed by the graduate division responsible for the candidate's progress. While such regulations differ from one division to another, each division's program and regulations are reviewed for approval by The Graduate College Council. In all cases, graduate

divisions are required to be explicit and clear about regulations that will affect the candidate. This must be stringently observed in divisional regulations concerning selection of principal advisors, advisory committees, and a plan of study. Similarly, divisions will be explicit and clear concerning academic policies and procedures surrounding qualifying, preliminary, and final examinations when they are required. The divisions are also responsible for providing the candidate with the support needed to plan and conduct the thesis or dissertation research.

At the same time, a major responsibility of the student is to become familiar with the regulations and expectations of his/her chosen division. These regulations and expectations are included in the *Rush University Bulletin* within the section devoted to each divisional program and within program publications. It is considered to be the student's responsibility to remain knowledgeable about these program regulations as they are set forth; they may change from time to time.

Some divisional programs may require the student to take one or more courses at a university other than Rush. It is the responsibility of the director of the graduate division concerned to make arrangements enabling satisfaction of such course requirements and to inform the student, prior to admission, of such costs and special arrangements as may be necessary.

Admission to Candidacy. Admission to candidacy is evidence that the doctoral student has successfully completed all required courses and has prepared to move into his/her intensive research experience. Admission to candidacy is a demonstration of confidence that the student will successfully accomplish the remaining requirements of the program. At such time as the student is admitted to candidacy, upon notification from the student's division director, the registrar enters "Admitted to Candidacy" and the date on the official transcript.

Academic Policies

(Additional policies are listed in the Academic Information section.)

The Graduate College adopts college-wide policies and procedures and reviews division regulations. Students follow the college and division policies in effect at the time of initial matriculation in The Graduate College although the effect of major changes in policy will be negotiated by the student and division director. Students reentering the college after an absence will be guided by policies and procedures in effect at the time of reentry.

Transfer of Credit. Subject to the approval of the major advisor and the division director, graduate level courses taken at other institutions may be applied to the graduate degree requirements at Rush if they are judged to meet divisional requirements. Grades from courses transferred from another institution are not recorded on the student's academic record; the number of credits is recorded and added to the cumulative number of credits.

Credit Hours. Rush University is on a quarter system. The quarter hour is the unit used by the College of Nursing, the College of Health Sciences, and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents one lecture hour, two hours of small group discussion or three laboratory hours per week.

Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and most classes give a final examination during this time.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Pass/No Pass Grades. Each division identifies all required course of its student. No required course may be taken under the pass/no pass option. With permission of the division director, electives may be taken for pass/no pass grades. The master's thesis and precandidacy research are graded P/N. The grading policy for postcandidacy research (699) for doctoral students is determined by each division.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time frame within which the student must complete such work, not to exceed one calendar year. No student may graduate with an incomplete grade on his/her academic record.

Upon completion of the unmet course requirements a new grade will replace the incomplete grade. A student who fails to remove the incomplete grade within the specified time period will receive a final grade of F.

Academic Standing.

Good Academic Standing. To remain in good academic standing, students must maintain a cumulative grade point average of 3.0 and meet their requirements of his/her division. A student must be in good academic standing to be admitted to candidacy and to graduate.

Academic Difficulty. Each division has policies and procedures regarding students who fail to maintain good academic standing. While the responsibilities of informing students of their academic problems and of establishing conditions for regaining good academic standing reside with the divisions. The Graduate College Council monitors the progress and promotion of all students and gives final approval to award students' degrees.

Dismissal. Grounds for dismissal beyond minimal criteria established by The Graduate College are determined by each division. Should a division recommend the dismissal of a student, the director will forward such recommendation to The Graduate College Council for final action. Letters of dismissal come from the dean. Appeal of a dismissal action begins within the appropriate division.

Full-time enrollment. Full-time enrollment is required of all graduate college students. Students must register for at least 12 but not more than 17 quarter hours per quarter. Students must obtain written permission for exceptions to this policy from the division director.

Residency. Years of residence required by divisional programs are based on the definition that a student must be registered for a minimum of three subjects in each of three quarters to satisfy The Graduate College requirement of a resident year. The Graduate College minimum residency required of all graduate students is registration as a full-time student for eight quarters of at least 12 credit hours each. Unless granted a formal leave of absence, regular graduate students who fail to register for three quarters in each academic year, depending upon divisional requirements, are considered to have withdrawn from the University and must compete for readmission with other applicants.

Extension of Study. Maximum enrollment for degree completion is seven calendar years. Any approved leave of absence will be excluded from this time. A student may petition for an extension of the overall time limit to the division director. If such an extension is granted, the student will be expected to enroll full time for each remaining quarter in residence. If a student proposes to

maintain active status in The Graduate College while at another location, approval by the division director and The Graduate College Council will be necessary. Such a student will enroll each quarter with the registrar of Rush University for zero hours of credit, and will be charged the enrollment fee at the rate in effect at that time.

Leave of Absence. A student who wishes to leave the University for a period of time may submit to the division director a written request specifying the circumstances and period of time involved. All decisions regarding the conditions of the leave and of the reentry into the program will be communicated to the student by the division. No leave of absence shall exceed one calendar year (see Academic Information Section).

Withdrawal from the University. Students withdrawing from the University voluntarily must complete a form available in the Office of the

Registrar. The student will obtain the necessary signatures and return all Medical Center material, the identification card. Withdrawal is final once all Medical Center bills have been paid and the completed form is submitted to the Office of the Registrar (see Academic Information Section).

Readmission. Any student who has withdrawn from the University or any dismissed student may apply for readmission by submitting an application for this purpose the admissions office. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements and course sequence in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment. Application deadlines may vary by division.

Division of Anatomical Sciences

Philosophy

The Division of Anatomical Sciences offers programs of study at the master's and doctoral level to prepare students for roles in teaching and research. A pedagogic component provides experience in gross anatomy, histology, and neuroanatomy sufficient for the student to be a confident participant in teaching, in the organization of courses and in conferences in the medical setting. Advanced coursework is available in cytology, embryology and developmental biology, regeneration, and the anatomy of joints. It is the goal of thesis and dissertation research to foster the students' conceptual growth as well as independence and resourcefulness in application of anatomical methods to the broader scope of a biomedical problem.

Admission Requirements

The Division of Anatomical Sciences seeks students who demonstrate in their previous educational experience motivation toward teaching and research as well as a capacity for independent study. The tutorial nature of graduate study in the Department of Anatomy requires that consideration be given to potential for the expansion of the student's area of interest with respect to the expertise and resources of individual faculty.

Applications are invited from students who have been awarded the baccalaureate degree; students who have satisfactorily completed other graduate work, or superior medical or other professional students at Rush who wish to pursue concurrent graduate study.

An undergraduate record with performance of at least a 3.0 (A=4.0) or equivalent level in the major field of study is required. The major, preferably in biology or chemistry, should include laboratory experience; courses in comparative anatomy and embryology are recommended. The Graduate Record Examination (GRE) is required in conjunction with either the biology or chemistry subtests.

Personal interviews are required of applicants whose credentials demonstrate acceptable academic and test performance. The purpose of this interview is to provide the

applicant with a better idea of departmental activities, and to assess his/her basic areas of interest.

Specific divisional admission requirements may be waived at the discretion of the Graduate Advisory Committee in anatomy. Advanced placement credits, also subject to approval, are limited to a maximum of one academic year. Since the course cycle begins in the fall quarter, applicants are ordinarily expected to complete their files by May 1 preceding the intended date of admission.

Curriculum--Ph.D. Program

The first- and second-year curricula are devoted to anatomy course work and to complementary electives selected from cell biology, physiology, biochemistry, pharmacology and immunology. Pedagogic experience in anatomy is provided through teaching assistantships during the second year.

An independent study during the second quarter of the first year is intended to help the student outline a preliminary project to be conducted in the summer following the first year. This project allows the student to apply anatomical methods to experimental objectives established in collaboration with a supervising faculty member. The project is intended to help the student develop lines of interest for additional elective course work and dissertation study.

Preliminary Examination. After completing the course requirements, the student must take the preliminary examination in order to qualify for degree candidacy. This examination emphasizes the student's ability to synthesize material, to solve problems and to communicate verbally and in writing. The first part of this examination consists of a written, comprehensive examination on course material. The second part, an oral examination, is based on the student's dissertation proposal.

Dissertation Research. Upon completion of both parts of the preliminary examination, the candidate devotes his/her time entirely to dissertation research and writing. The dissertation must be an original experimental or applied study; its format and review must comply

with requirements of The Graduate College. The candidate must finally defend the completed dissertation before his/her research committee.

Course Requirements. The program requires a minimum of 140 quarter hours of credit. The Division of Anatomical Sciences maintains a minimum residency requirement of eight quarters of full-time registration in The Graduate College. This residency requirement also applies to students who have received advanced standing.

Three advanced topics in anatomy (8-12 quarter hours total) are required. These are delivered as seminars, tutorials or, in some instances, as laboratory instruction. Courses

offered by the Division of Cell Biology (CEL 501, CEL 522, and CEL 571) are recommended so that four hours from this course series may be applied to the major advanced topic requirement.

The balance of elective hours are subject to approval by the Division of Anatomical Sciences. Two minor electives must be taken outside of the division.

Journal Club. Participation in the departmental journal club is expected each quarter. This club exposes students to current topics in anatomical research and provides opportunities to discuss problems with established investigators.

Suggested Curriculum: Anatomical Sciences

Year I			
Fall Quarter		Doctoral Quarter Hours	Masters Quarter Hours
ANA 451	Histology	5	5
ANA 471	Human Anatomy I	7	7
ANA 501	Supplement to Histology	1	2
ANA 503	Supplement to Human Anatomy I	1	1
ANA 595	Journal Club	1	1
Winter Quarter			
ANA 472	Human Anatomy II	7	7
ANA 504	Supplement to Human Anatomy II	1	1
ANA 581	Approaches & Meth. in Morphological Research	2	2
ANA 595	Journal Club	1	1
	Elective	5	2
Spring Quarter			
NEU 501	Neurobiology	5	5
CEL 501	Cell Biology or Equivalent Course	2	2
ANA 505	Embryology	2	2
ANA 581	Approaches & Meth. in Morphological Research	2	2
ANA 595	Journal Club	1	1
	Elective	2	2
Summer Quarter			
ANA 595	Journal Club	1	1
	Research (Proposal Development)	13	13
Year II			
Fall Quarter			
ANA 591	Teaching Assistantships	9	3
ANA 595	Journal Club	3	3
	Electives	14	2
followed by Written Comprehensive Examination and Thesis Proposal			

Master's Program

A master of science degree with a major in anatomical sciences is offered for individuals seeking advanced study without the full commitment to doctoral study. This is primarily a concurrent degree program for Rush medical students although outside applicants will be considered. Flexibility of this program permits students to pursue cross-disciplinary research in other departments where a structural biology problem is involved.

The program consists of six quarters of study and requires a research thesis. On the recommendation of the program director, a student may petition for admission to the doctoral program.

M.D./M.S. or M.D./Ph.D. Program

The exceptional student with a research orientation may wish to pursue both the M.D. and Ph.D. degrees. Coordination of Ph.D. and medical study is especially feasible in the Division of Anatomical Sciences since introductory course work for the Ph.D. degree can be satisfied within the medical curriculum.

Although master's degree requirements can be completed within the four year medical curriculum, the Ph.D. requires a commitment of at least two years. Arrangements with the medical school can be adapted to suit individual needs.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Assessment of Progress. The student's progress will be assessed continuously based upon performance in the courses taken and upon evaluations by the Graduate Advisory Committee.

Good academic standing requires maintenance of a cumulative grade point average of 3.0 with the exception that students earn B grades in the major anatomy courses. An outline of specific policies relevant to the preliminary examination and dissertation defense may be obtained from the program director.

Guidance. Each entering student is guided in his/her course of study by the program director with the assistance of the Graduate Advisory Committee until such time as the student determines a course of dissertation scholarship

Degree Requirements	Doctoral Program	Masters Program
Core Anatomy Courses	32	22
Electives	21	11
Teaching Assistantship	9	3
Journal Club	6	6
	<hr/> 68	<hr/>
Research	72	13
	<hr/>	<hr/>
Total Hours	140	55

and selects a research advisor.

The research advisor, who must hold an appointment in the Division of Anatomical Sciences, ensures that the student's graduate course work satisfies requirements of the division and The Graduate College; assists the student both in the development of a dissertation proposal and in dissertation research and obtains necessary laboratory and funding resources to complete the student's study.

Research Activities

Modern research and teaching areas in the Academic Facility have been designed specifically to meet the needs of both basic medical science education and research with accessibility to scanning and transmission electron microscopes and a bioinstrumentation laboratory. Individual faculty are available to discuss their research interests with prospective applicants and to provide documentation of current activities.

The opportunities exist for students to establish cross-disciplinary programs with affiliated clinical departments, such as the Department of Ophthalmology or the Department of Orthopedic Surgery, which has one of the major gait laboratories in the country.

Research in neurobiology is focused on cellular responses to nerve injury and repair (Kerns, Jacob, Durica). Mechanisms of pattern formation and histogenesis are being studied in regeneration of amphibian limbs (Dinsmore). Pathology of retinal ischemia and its effects on microvasculature is being studied in the eye

(Hughes). Structural and physiologic studies on the lens are directed to the function of membrane specializations in cell communication (Kuzak). The organization of the red cell membrane is being studied in relation to pathological deformations and the cytoskeletal components of the erythrocyte (Kodadad). Mechanisms and regulation of platelet formation are being studied

in bone marrow (Levin). The pathophysiology of the synovial joint and articular cartilage is being studied in experimental models (Williams). Biomechanical studies on locomotion in health and disease are conducted in the gait laboratory (Andriacchi, Sumner).

Division of Biochemistry

Philosophy

The goal of the graduate program in the Department of Biochemistry is to provide high quality education, practical training, and research opportunities to students who are interested in practicing basic and applied molecular medical biochemistry of cell function. Otherwise stated, the goal is to develop health care professionals who will substantially improve health care delivery to the public. *Medical biochemistry* is perhaps the most fitting single term that can describe the department's scholarly direction. Members of the Department of Biochemistry conduct a broad range of extramurally supported research activities. A strong interaction exists between practicing clinicians and members of the department for investigative expertise in the areas of connective tissue biochemistry, etiology of arthritis, mechanisms and regulation of tumor cell invasion, regulation of gene expression, cell membrane lipid biochemistry, endothelial cell biochemistry and thrombosis, biochemistry of human milk, biochemistry of metalloelements, and applications of clinical biochemistry to medical problems. Some of these research programs are joint efforts with other departments giving the student an opportunity to interact with investigators in other disciplines as well as clinicians. The departmental laboratories are fully equipped with the instruments required for modern research in biochemistry, tissue culture and molecular biology.

Several faculty members are involved in the operation of hospital clinical biochemistry laboratories and perform basic as well as developmental research related to human diseases. These laboratories are available for student training. The Clinical Biochemistry Laboratories are modern, automated, computerized high-volume medical service facilities. The holdings and service of the Library of Rush University, as well as the numerous journals and books received in the department, provide ready access to the scientific literature.

Admission Requirements

Normally, minimum requirements for admission include a bachelor's degree in any specific discipline with a minimum grade point average (GPA) and Graduate Record Examination (GRE) scores as defined by The Graduate College. Specific course requirements are as follows: chemistry—one year each of general

chemistry and organic chemistry plus one semester or two quarters in quantitative analysis; biology—one year of general biology plus one year of intermediate or advanced undergraduate biology; mathematics through calculus; physics—one year. A semester of physical chemistry is recommended but not required.

Students may be accepted with less than the minimum requirements with the understanding that such deficiencies are to be made up during the first year of graduate study and that such make-up work may prolong their studies at Rush. Alternatively, the Graduate Program Committee may waive specific division requirements on a case by case basis as recommended by its credentials subcommittee.

Students are normally admitted in the fall quarter, but the Graduate Program Committee may at its discretion recommend admission for the winter, spring, or summer quarter. Applications may be submitted at any time during the year, preferably before March 1.

Applications for admission to the program will be evaluated by the Graduate Program Committee of the Department of Biochemistry and in special cases the Graduate College Council. Applicants are encouraged to visit Rush University for an interview. Consideration for admission will include overall academic record, results of the GRE, recommendation of the referees, and especially interview results.

Applicants to the joint M.D./Ph.D. program must first be accepted by Rush Medical College. However, those applicants who are not admitted to the medical college may apply for the Ph.D. program and their applications will be processed in the usual manner.

Transfer students with an advanced degree in science may upon the recommendation of the Graduate Program Committee, be admitted to the graduate program in biochemistry with advanced standing. The extent of advanced credit will be determined by the Graduate Program Committee on an individual basis through its credentials subcommittee. All advanced level entrants are urged to see the credentials subcommittee before matriculation.

Organization of the Graduate Program

The Graduate College Council, chaired by the Dean, has the ultimate responsibility for all decisions with regard to all graduate programs in

the college except for those decisions allocated to the division. Within the division, the department chairman has full responsibility for the operation of the graduate program. However, the chairman delegates the day-to-day operation of the graduate program to the Director of Educational Programs, who works closely with the Graduate Program Committee, which recommends admissions, faculty appointments to The Graduate College, follows student progress, approves the appointments of advisors and committees, schedules student preliminary examinations, dissertation proposals and dissertation examinations, and receives the results of such committee deliberations. Both the chairman and the Director of Educational Programs are ex-officio members with vote of all committees dealing with the graduate program.

The Director of Educational Programs is appointed annually by the chairman of the department and serves as the Director of the Graduate Program and member of the Departmental Advisory Committee. He/she is a member of The Graduate College Council. In addition, he/she is responsible for the delivery of the biochemistry instruction for Rush Medical College, the College of Nursing and the Medical Technology program. He/she approves graduate students' programs each quarter, maintains graduate student records, and chairs the Graduate Program Committee in its deliberations.

The Graduate Program Committee consists of eight members appointed by the chairman including the Director of Educational Programs as chairperson, a graduate student selected from the student body, and the department chairman (ex-officio). At least two of the eight appointees will hold their primary appointments in other departments. The Graduate Program Committee transmits to the chairman of the department all graduate program matters for approval. All decisions of the committee are made on the basis of a majority vote of members present. In general, the following list specifies the committee's responsibilities.

1. recommends graduate student admission to the program and specifies advanced students' courses of study. To aid the committee in this task, its chairman appoints a credentials subcommittee consisting of two committee members. Their recommendations are then considered by the committee.
2. follows the progress of each graduate student and recommends probation, dismissal, and leaves of absence. The committee notifies the student's advisor of any actions taken or needed to promote the best interests of the student.

3. appoints the Departmental Examination Committee which prepares the yearly written portion of the preliminary examination.
4. recommends and approves the composition of a Dissertation Advisory and Dissertation Examination Committees, if it deems the student to be ready, and receives the results of the examinations. Recommends a course of action if the examinations are not passed.
5. adjudicates difficulties arising between student and advisor, either directly or by referring these to other committees and/or the Program Director. The Graduate Program Committee may act as an initial Grievance Committee to consider redress of grievances by a student. Students presenting a grievance to the committee may have a member of the graduate faculty present as a spokesperson at any formal hearing which may be convened by the Director of Educational Programs. The next avenue of appeal is the Departmental Advisory Committee.
6. develops and modifies the graduate program curriculum; reviews and approves course outlines for new graduate course proposals, establishes grading policies and course requirements.
7. recommends appointments of members of the faculty to The Graduate College faculty and recommends discontinuation of such appointments. Only faculty members with Graduate College appointments and active research programs may serve as graduate student advisors.
8. considers any such other matters as may relate to the administration of the graduate program.

Financial

Tuition is determined by the University for all graduate students, but this is usually waived for qualified students. Scholarships and/or financial aid packages are available for those students who qualify. All Rush University students may apply for financial assistance through the Office of Student Financial Aid.

Student stipends are available on a competitive basis. It is intended that graduate students receive their stipends from the Department of Biochemistry until the individual has passed his/her written portion of the preliminary examination. From that point on, it will be the obligation of the research advisor to provide the student with financial support from his/her extramural research support. At present (1991) this will be \$9,500 (including summers) per year before preliminary examination and may be increased to approximately \$11,000 per year,

determined on an individual basis, after successful completion of the dissertation proposal examination. Faculty members are required to add graduate student salaries to their budget requests to extramural funding agencies or use technician salaries to support the students. This approach assures that graduate students will select those faculty members or programs that are well funded on the basis of quality and competitive review. Thus, the students will have a better opportunity to complete a quality research project and obtain training within a research program that has met peer-review standards.

Curriculum

Introduction. The Ph.D. is a research degree that is conferred in recognition of proficiency in research, breadth and soundness of scholarship, and thorough acquaintance with a specific field of knowledge as determined by the graduate faculty. To attain these goals the curriculum includes:

1. A core of required biochemistry courses that provide the basis for students to pursue their own specialized research.
2. A variety of elective courses that provide the student with the flexibility to tailor their course work to their research interests or needs.
3. Research to be started as soon as possible after matriculation.

During the student's first year he/she will complete the required biochemistry courses, as well as some of the elective courses. He/she must select a research advisor no later than the end of the fourth quarter (summer). Until a permanent advisor (and mentor) is selected, the Director of Educational Programs serves as the student's advisor. During the summer quarters the student will register for a minimum of 12 credit hours. During quarters 5, 6, and 7 the student will take electives, do research, participate in the pathobiochemistry seminars and write the one-day written preliminary examination at the end of quarter 8 (summer of second year). At the end of quarter 8, or during quarter 9, the student will submit a written dissertation proposal to his/her Dissertation Advisory Committee and defend the proposal in an oral examination before the committee. The student may continue taking formal electives, with the concurrence of his research advisor, while completing his/her dissertation. When the research project has achieved the desired objectives under the guidance of the Dissertation Advisory Committee, the student will defend his/her dissertation as provided for by the Graduate College rules. Successful completion of the above course of

study and research leads to a recommendation that the Ph.D. degree be conferred upon the successful student.

Required Didactic Courses. Any portion of this may be waived on a case-by-case basis by the Graduate Program Committee:

1. **Quarter Hours Required.** A full-time graduate student is registered for 12 or more hours of credit each quarter. A total of 144 quarter hours with usually 12-16 quarters in residence is required for graduation. The Graduate Program Committee may at its discretion recommend a waiver to The Graduate College Council of any portion of this requirement for students with previous graduate work at Rush or elsewhere.
2. **Required courses -** A total of 56 quarter hours of course work is required. Required biochemistry courses are shown in Table 1. The ten elective hours shall be selected from courses listed in Table 2. Additional electives may be taken in subsequent years with approval of the student's research advisor.

Table 1. Required Courses for Biochemistry Graduate Students

Course	Number	Credits
Medical Biochemistry	BCH 471, 472	12
Advanced Biochemistry	BCH 505	6
Biochemical Techniques	BCH 581, 582	8
Connective Tissue Biochemistry	BCH 624	3
Supramolecular Biochemistry	BCH 631	3
Journal Club	BCH 595	3
Seminar	BCH 597	9
Introduction to Research	BCH 698	2
Electives (didactic)		10
Total course work		56

Students register for BCH 699 credits to make
12 hours minimum total each quarter

All required didactic courses in biochemistry and those biochemistry courses taken to satisfy elective requirements must carry a letter grade. Electives taken outside the Department of Biochemistry may be taken for a letter grade or for a Pass/No Pass as determined by the department. Other nonrequired elective courses may be taken on a Pass/No Pass basis. Research and seminar courses carry a P/N grade.

The department seminar program may be considered to be a part of the student's research experience. Attendance at seminars is

Table 2. List of Recommended Electives

<u>FALL</u>		
IMM 502	Immunology	4
PHR 501	Pharmacology	5
PHY 451	Physiology	5
BCH 641	Carbohydrates & Lipids	3
<u>WINTER</u>		
PHY 452	Physiology	5
BCH 641	Carbohydrates & Lipids	3
<u>SPRING</u>		
CEL 502	Cell Biology	2
IMM 501	Immunology	5
BCH 511	Clinical Biochemistry *	4
<u>ANY QUARTER</u>		
BCH 690	Minicourses	1 each
	Variable topics	
BCH 585	Extramural Research	5
(Open to selected students upon application to Department Chair.)		
BCH 599	Independent Study **	Variable credit

* BCH 511 open only to students whose career goal is clinical biochemistry.

** Any topic, under guidance of a professor at Rush or elsewhere. Must be approved by Director of Educational Program.

mandatory through the first three years at Rush through registration in BCH 597. The seminar chairperson will monitor attendance and, since members are part of the student's research experience, questions concerning seminar topics may be part of the preliminary examination. After a student has passed his/her preliminary

examination he/she may be excused from attending a particular seminar upon the written approval of the research advisor.

3. Suggested Program (see Table 3). Note that:
 - a. All required courses are taken in the first and second year; electives are taken through most, or all, of the second year.
 - b. A research advisor may be selected by the end of the second quarter of the first year.
 - c. During the summer, the student registers for 12 hours of research.

Academic Policies

The goals of the Ph.D. program are to provide education, training and research opportunities to students interested in the various branches of biochemistry. All students will acquire a thorough knowledge of normal biochemical processes that occur in the human organism leading to the development of knowledge and skills that are of potential benefit to health care delivery.

The Ph.D. degree will be awarded following the successful defense of a research dissertation that demonstrates the ability of the student to perform and present original scientific work. Prior to this time, the student must have completed all course requirements with a minimum average of B (3.0/4.0) and have passed the Preliminary Examination.

Table 3. Suggested Program of Study

Year	Fall		Winter		Spring		Summer
1	BCH 471	6	BCH 472	6	BCH 505	6	BCH 699 12
	BCH 581	4	BCH 582	4	Elective	3-4	
	BCH 595	2	BCH 595	2	BCH 595	2	
	BCH 597	1	BCH 597	1	BCH 597	1	
	BCH 698	1	BCH 698	1	BCH 699	2-3	
	BCH 699	1	BCH 699	1			
2	BCH 597	1	BCH 597	1	BCH 597	1	BCH 699 12 Take written preliminary exam
	Elective	3-5	Elective	3-5	Elective	3-5	
	BCH 624	3	BCH 624	3	BCH 699	7-9	
	BCH 699	4-6	BCH 699	4-6			
3	BCH 597	1	BCH 597	1	BCH 597	1	BCH 699 12
	BCH 699	12	BCH 699	12	CH 699	12	
	Defend dissertation proposal						

In subsequent years: Enrollment in BCH for 12 hours each quarter until successful dissertation defense. Twelve hours (full-time) enrollment is required each term. It is recommended that the student select an advisor at the end of the winter quarter of the first year but no later than the summer quarter.

Written Preliminary Examination

The one-day written preliminary examination is taken by the student during quarter 8 of his/her graduate studies. It consists of basic biochemistry, biochemical methodology, connective tissue biochemistry, molecular biology and cell biology. Questions relating to seminars may also be included.

The examination is put together by a committee appointed by the Director of Educational Programs with the consent of the Graduate Program Committee. Normally, questions from the faculty-at-large are also solicited.

If a student fails the preliminary examination (score of less than 70%), a makeup examination will be given to the student within eight weeks of being notified of the failure. If a student fails the makeup exam, the case will be referred to the Graduate Program Committee, which may vote to dismiss the student or to give the student a third and final opportunity to take the written preliminary examination.

Dissertation Advisory Committee

A Dissertation Advisory Committee for a student may be appointed at any time upon a written request to that effect by the student's advisor. The request shall be forwarded to the Director of Graduate Programs, who will present it to the Graduate Program Committee for approval. Composition of the committee is established according to Graduate College rules.

The Dissertation Advisory Committee will evaluate the student's written proposal and then convene in a formal defense sitting to hear the student's oral presentation and to make suggestions. The main purpose of the Dissertation Advisory Committee is to determine if the student's proposal will form a sufficient basis for writing a Ph.D. dissertation. Following approval of the proposal, the student is expected to complete his/her work substantially as described in the proposal. Any major deviations must be approved by the Dissertation Advisory Committee. Its members also serve as resource persons for the student during his/her dissertation work. All decisions of the Dissertation Advisory Committee will be based on a majority vote of the committee membership.

The format of the written presentation is flexible. It would normally be similar to that of an in-house grant application with literature review, describing previous work done, methods, hypothesis, significance, etc.

After a student passes his/her dissertation defense, he/she is admitted to Ph.D. candidacy as defined by the Graduate College. Should the Dissertation Advisory Committee not approve the student's proposal, it shall make its

recommendation for correcting the defect or for other action to the Graduate Program Committee.

Dissertation Examination Committee

The Dissertation Examination Committee is appointed at the written request of the student's advisor to the Graduate Program Committee when, in the view of the advisor and the student's Dissertation Advisory Committee, the student is ready to prepare his/her Ph.D. dissertation. It will normally be identical to the Dissertation Advisory Committee though additional members also may be appointed. Inclusion of extramural members is encouraged; however, a majority of the committee membership shall be comprised of the Department of Biochemistry faculty. The Dissertation Examination Committee members receive the student's dissertation at least four weeks before the defense. The defense itself is conducted according to Graduate College rules. It is also expected that work based on the student's dissertation be written in manuscript(s) form ready for submission to a refereed journal. This requirement will be satisfied if such a manuscript(s) has already been submitted, accepted, or published. Upon the recommendation of the Dissertation Examination Committee, the student is recommended to the Graduate College for awarding the Ph.D. degree. Format of the dissertation shall be as specified by The Graduate College. All decisions of the Dissertation Examination Committee are made according to Graduate College policies.

Grade Point Average

Students must maintain a GPA of 3.0 (B) and have no outstanding failures in order to remain in the program, to be admitted to the preliminary examination and to graduate. At the end of each academic quarter, the student's academic progress is reviewed by the Director of Educational Programs. If the student's average is below 3.0, the student will be sent a letter by the Director of Educational Programs informing the student of the consequences of not maintaining an average of 3.0 or above as well as suggestions for improvement. If the GPA is below 3.0 or if the student has one or more failures in a required course(s) taken on a P/N basis, the committee may recommend the student's dismissal from the program or may recommend placing the student on probation for one or two quarters. The committee shall define the terms of the probation for either one or two quarters. The committee shall define precisely the terms of the probation in a letter to the student. If such terms are not carried out by the student and he/she receives a failing grade in a nonrequired elective, the student's record is

reviewed by the Graduate Program Committee to decide how the failure is to be handled.

Student Responsibility

It is the student's and his/her advisor's responsibility to read and observe the regulations set forth by the department, The Graduate College, and Rush University. It is also the responsibility of each student to read and observe the requirements for the Ph.D. degree set forth by The Graduate College and the Graduate Biochemistry Program and to meet deadlines established by both. Failure to receive notice of examination, filing dates, etc., does not exempt students from requirements. It is the student's responsibility to seek out this information. Seminar attendance by all graduate students is mandatory.

Time Limit

No more than seven years shall be allowed for the completion of the doctoral program, though quarter by quarter extensions may be granted via petition to the Graduate Program Committee.

Extramural Experience

Selected students will have an opportunity to spend a quarter in a basic science research laboratory in an industrial setting or another recognized institution for research or higher learning in the United States or Europe. The students will be selected for such experience through guidelines established by the department.

During his/her tenure in the outside laboratory or institution, the student will register for BCH 585 Extramural Research (5 hours). The selected student will spend eight to ten weeks (normally during the spring quarter) at an industrial research laboratory in Europe or the U.S. under the guidance of a faculty member in industry or at another research institution, who holds a faculty appointment at Rush. The student will select a major and a minor area from the research areas provided and will study in both these areas during his/her stay at the institution. The student will be required to read assigned articles, take a final examination to be given by the faculty member based in industry or another research institution and submit a report on his/her experience and accomplishments to the Director of Educational Programs. Letter

grades based on the student's performance will be given.

During his/her experience at the outside laboratory the student will also be registered for BCH 699 Research (7 hours).

Concurrent M.D./Ph.D. program

A student who has been admitted to, or is currently attending Rush Medical College, may apply for admission to the concurrent M.D./Ph.D. program in the biochemistry department.

The program is tailored to an individual student's needs. Normally the student first takes the required preclinical courses at Rush Medical College and passes the United States Medical Licensure Examination (USMLE), Step 1. The student may then begin work in the graduate program, which would normally take two to three years. Following the completion of graduate work, the student resumes medical studies in the clinical clerkships. Alternatively, the medical student may complete the medical school requirements for graduation before entering the Ph.D. program.

The participant in the concurrent M.D./Ph.D. program will be expected to fulfill the same divisional requirements set by the credentials subcommittee of the Graduate Program Committee. This would include formal course requirements at the appropriate grade level, passing the preliminary examination, and the submission of a high quality dissertation based on original research work. Many formal course requirements for the Ph.D. degree will be met by taking the prescribed Rush Medical College preclinical courses, e.g., biochemistry, pharmacology, physiology, immunology, and electives.

How the student meets any additional formal course requirements will be determined on an individual basis by the Graduate Program Committee. It is expected that most course requirements will be met by the M.D./Ph.D. program participant during the first year in the graduate program and that the preliminary examination will be taken at the end of the first year. The remainder of the student's time is to be spent in research activities. The entire concurrent M.D./Ph.D. program should normally require six to seven years to complete.

Division of Cell Biology

The Program

Generally, cell biology explores the structural organization and functional integration within cells. As a field of study, its knowledge and techniques extend to all the specialized fields of the health sciences. The purpose of the Division of Cell Biology is to supplement understanding of such basic knowledge and techniques for students in the health sciences. The division encourages integration of the resources of people and facilities throughout Rush University to produce a comprehensive study of the cell. Such a purpose must be multidisciplinary, for cell biology spans many departments within the University, including anatomy, biochemistry, immunology, microbiology, neurological sciences pathology, pharmacology, and physiology.

Historically, the electron microscope has had a major impact on the growth of cell biology. The teaching of the division is centered around the electron microscopy laboratory of The Graduate College. Students will study the

ultrastructure of the cell and its organelles in electron micrographs. But it is most important that they learn about the function of the organelles in a multidisciplinary fashion. Thus, the supramolecular structure and biochemical ultrastructure of the cell constituents are emphasized. Advanced students will learn the technical skills necessary for pursuit of research projects involving cell biological techniques. Teaching is organized with courses in cell biology and electron microscopy. Students taking such courses may use them as credits toward their Ph.D. requirement in other graduate divisions of Rush University, subject only to the regulations of those divisions.

Courses

The courses available are subject to demand and limitation to graduate students within the graduate, medical, nursing (i.e., graduate nurses), and health sciences colleges.

Division of Immunology

Philosophy

The goal of this program is to train investigators who will contribute to the advancement in understanding immunological mechanisms in health and disease.

Admission Requirements

Students who have received the baccalaureate, master's, or doctoral degree may apply. It is recommended that students wishing to enter the immunology program should have achieved a high level of competence in biology, mathematics, and chemistry. It is important that applicants be adequately prepared to engage directly in graduate study and research.

Candidates usually enter the program in the fall quarter; applications should be submitted as early as possible and no later than April 1. Applications will be evaluated as they are received.

Applicants for admission to the program will be evaluated initially by the departmental admissions committee and then the departmental faculty. Considerations for admission will include overall academic record, the recommendations of the sponsors, results of a recent Graduate Record Examination, and the description of the applicant's own aspirations and interests. Personal interviews will be arranged for potential candidates after the preliminary screening. Students will be admitted into the program at levels other than first year only under exceptional circumstances; this will require approval by the faculty of the Division of Immunology and by The Graduate College Council.

Curriculum Requirements

A core program of courses encompassing major aspects of immunology given concurrently with laboratory tutorials and pre-thesis research comprises the first two years.

Courses in basic and clinical immunology, biochemistry, microbiology, molecular genetics, cellular immunology, and molecular immunology are required. Additional advanced courses may be selected from the following: inflammation, clinical immunology, clinical microbiology, and host defense. A variety of elective courses from other divisions of Rush University are also available.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

General Information. A minimum of three years of full-time study (four quarters per year) and research, or the equivalent in part time, is required to satisfy the residency requirements of this program.

Upon admission each student will be assigned by the program director to an individual tutor who will be responsible for guiding the student's academic activities during the first 12 months when the selection of a principal advisor for thesis research should be made. Alternatively, some students may enter the program with a principal advisor selection already made. During the first 12 to 24 months the student will carry an academic program designed for his/her own requirements through frequent discussion with his/her tutor and principal advisor, and with the Graduate Advisory Committee. This program should provide the student with a thorough grounding in immunology, microbiology, and appropriate related basic sciences and practical experience in several laboratories of the division faculty. Following the demonstration of competency in the areas of immunology, encompassed by the core curriculum and other elective courses, and the acceptance of a dissertation proposal, students will then essentially devote themselves full time, with participation in general departmental activities, to their dissertation research. The research program will be carried out under the guidance of a designated principal advisor and a dissertation committee. Following agreement by the student, advisor, and dissertation committee that a suitable stage in the research program has been reached, the student will prepare and present a dissertation demonstrating the ability to carry out a research program and make contributions to the area of investigation.

All students must meet the basic requirements of The Graduate College. Passage of the preliminary examination as partial fulfillment for entrance into candidacy for the Ph.D. degree is dependent upon demonstrated competence in the field of immunology. This can be achieved by participating in the recommended core program of lecture and tutorial courses of both a basic and advanced nature which may be supplemented by independent study. Other requirements, as specified by the student's thesis

advisory committee, may be met by completion of lecture, tutorial, or laboratory courses in other divisions of The Graduate College.

Courses in cell biology, pharmacology, histology, pathology and statistics are considered relevant to training in immunology; these are available as part of the student's academic program but are not considered essential for all students. It is anticipated that courses in some subjects considered essential for a particular student's academic program will not be available in The Graduate College. Such requirements may be met either by special arrangement with the faculty of other institutions or by enrolling in or auditing such courses available at other institutions within the geographical area. Faculty assistance in the identification of these courses and supporting tutorial instruction will be arranged. Involvement also is required in the immunology/microbiology department research conferences and journal clubs.

Assessment of Progress. The academic progress of each student is continuously assessed by each faculty member with whom the student has worked. The use of conventional examinations is encouraged but is not required, and instructors are free to use whichever system of assessment they wish to apply, provided their criteria are made explicit.

To be in good standing, a student must maintain a cumulative grade point average of 3.0 (A=4.0) or better. A student whose cumulative GPA falls below 3.0 will be placed on probation. A student on probation must attain a cumulative GPA of 3.0 within two quarters (excluding summer quarter).

A student who receives a grade of C in more than two required courses will also be placed on probation. For any student on probation, failure to regain good academic standing within two quarters constitutes grounds for dismissal.

Evaluation of the overall progress of a student is based on reports received biannually from the tutor or principal advisor and the dissertation advisory committee. The reports describe the status of academic achievement, the progress of research and laboratory activities, and identify projected requirements for the remainder of the program.

It should be stressed that the purpose of such assessment and examination is primarily to aid the student in achieving academic goals by determining depth of understanding of the several areas of study and, when necessary, by identifying problems in order to enlist the aid of other faculty to assist the student in his/her training. Considerable importance in this continuous assessment is placed on the student's ability to communicate. Guided development of

the skills required for both literary and verbal presentation of knowledge and ideas, as well as their formulation, is an important responsibility of the faculty in this program.

Preliminary Examination. A comprehensive written preliminary examination is given at the end of the second year of study. This examination covers the recommended core program of courses in immunology and successful completion is required for proceeding into candidacy.

Graduate Advisory Committee. A committee consisting of three elected faculty members, the chairperson of the Department of Immunology/Microbiology and the division director (appointed by the chairman) shall participate in the administration of this program. The functions of this committee are: to assist each student in the design of an appropriate academic program; to guide both the student and faculty in advisor selection and in the appointment of the dissertation advisory and dissertation examination committees; to ensure the continued satisfactory progress of the student; and to initiate any necessary changes in or additions to this program. The Graduate Advisory Committee also shall review biannually the progress of each student throughout the program and shall report annually to the faculty of the division on the progress of each student.

Dissertation Advisory Committee and Dissertation Proposal. It is expected that within four quarters of admission the student shall have identified a specialty and a principal advisor with whom to carry out his/her research activities. Concurrent with the development of a research program and within 10 quarters of admission, the following three steps should be taken and accepted by the Graduate Advisory Committee for the student to continue in the program:

1. formulation of a dissertation advisory committee that shall have five or six members including the principal advisor, three or four faculty members and one "outside" individual with recognized expertise in the candidate's field of interest, selected jointly by the candidate and principal advisor. The outside individual, not of the division, should be a faculty member of an institution of higher education, active in research in the student's area of investigation and willing to maintain active contact with and advise the committee and student concerning the progress of research training for the duration of the candidacy. When additional advisors are required, these also

shall be members of the dissertation advisory committee. The chairperson of this committee shall be an active member of the Department of Immunology/Microbiology. Each student will be required to meet with his/her dissertation advisory committee every six months.

2. presentation to and acceptance by the dissertation advisory committee of a dissertation proposal that should constitute a scholarly outline of work intended, leading to research that will contribute to existing knowledge. The proposal should include an extensive review of the relevant literature, and a detailed outline of the proposed research demonstrating an understanding of the technical and theoretical aspects of the experimental protocols. The student will be required to defend this proposal before the dissertation advisory committee and, if indicated, the Graduate Advisory Committee. This document is considered a blueprint for a suitable dissertation project at the time it is prepared and accepted. Changes in project or strategy during the student's dissertation research may be made with the approval of the advisor and the dissertation advisory committee.
3. successful completion of course work identified in the student's academic program, and adequate performance in a written preliminary examination administered by the Graduate Advisory Committee.

Dissertation. Following admission to candidacy the student shall devote full time to research activities under the guidance of the principal advisor and dissertation advisory committee, and shall be actively involved in all the scholarly pursuits of the Department of Immunology/Microbiology, including tutorials, seminars and journal clubs. The student is expected to seek opportunities to gain experience in teaching and to be involved in the teaching activities of the faculty to the extent that this does not interfere with the progress of the research program.

A student must demonstrate research accomplishment and written communication skills by submitting two or more first-author research papers to refereed journals. The manuscripts may be incorporated into the student's dissertation.

Following at least four quarters of research activity and agreement by the student and the dissertation advisory committee that research progress is such that a dissertation may be prepared and presented, the Graduate Advisory

Committee shall be notified. At least three months prior to the expected date of completion, a timetable will be set by the Graduate Advisory Committee providing a deadline for submission of the dissertation and times for presentation and defense of the dissertation. Additional examinations also may be required and a timetable will be established for these.

The Graduate Advisory Committee will appoint a dissertation examination committee for each candidate. The examination committee shall be composed of the dissertation advisory committee of the student and any additional members of the faculty of The Graduate College deemed appropriate. The dissertation examining committee may, through consultation with the Graduate Advisory Committee, request evaluation of the written dissertation by at least one scientist (external examiner) of international stature in the field of investigation who is not affiliated with Rush University.

The role of the dissertation examination committee is to evaluate the student based on the following: presentation and general defense of the scientific basis of the dissertation in an open lecture; reports of any external examiner(s) concerning the standard of scholarly research presented in the dissertation and an oral defense of the dissertation before the examining committee and approval of the written dissertation.

The dissertation examination committee may request additional examination of the student or evaluation of the dissertation before a recommendation on approval is made to the Graduate Advisory Committee. Upon agreement that the student has satisfactorily met the requirements for the award of the degree of doctor of philosophy, the chairman of the dissertation examining committee and the program director communicates their recommendation to The Graduate College. If within ten quarters following entrance into candidacy the student has not submitted a dissertation or the dissertation advisory committee has failed to notify an intent to submit a dissertation, the Graduate Advisory Committee may assume the role of dissertation advisory committee to evaluate the progress of the student and suggest modifications that would enable candidacy requirements to be completed within one calendar year. It is expected that students will complete the program in less (generally four or five years) than the seven-year maximum period specified by The Graduate College. Requests to the division director and The Graduate College Council for extension of enrollment beyond this period will be considered only under exceptional circumstances.

Research Activities

Areas of current interest in which research training is offered include the immunobiology of the inflammatory response; the complement system, with special upon C-reactive protein and the acute phase response, and the proteins related to amyloid; mechanisms of activation, the control of the complement attack mechanisms and the pathophysiology of complement deficiencies; pathogenesis and immunobiology of amyloid; immunopharmacology, cellular immunology, particularly cell-mediated mechanisms in inflammation; immunobiology of transplantation; growth factors and receptors; the molecular genetics of antibody formation; mechanisms underlying the allergic response; immune interactions of cells and membranes. Also available is training in virology, including transcription, replication, and final assembly of negative strand RNA viruses, cellular receptors

for human hepatitis B virus, the immunopathogenesis of AIDS; gene expression and pathogenesis of woodchuck hepatitis virus and avian reoviruses which cause arthritis. The application of basic research to questions of human health and disease is a general commitment of the faculty of this program.

The current annotated departmental research report is available on request.

Service and Clinical Activities

In addition to offering the graduate program and conducting active research programs, the department teaches immunology and microbiology to medical students, offers an allergy/immunology residency program, and maintains a close affiliation with the hospital's clinical immunology and microbiology laboratory.

Division of Medical Physics

Philosophy

The Division of Medical Physics offers two programs of study and research leading to graduate degrees. The faculty members of the division are active in theoretical and experimental research in medical physics and its clinical applications. The diversity of interests of the faculty allows the division to offer graduate degree programs that can satisfy the interests and needs of students in several areas of medical physics: dosimetry; imaging applied to medicine; radiation sources; physics of radiation therapy; physics of diagnostic radiology, physics of nuclear medicine and radiation protection.

The programs lead to the following degrees:

- Master of Science with a major in Radiological Sciences
- Doctor of Philosophy with Medical Physics as the area of interest.

In addition to the degree programs, the division offers postdoctoral training in medical physics for individuals who have doctorates in physics or physical science. The division also permits students at large to register for course work.

The counterpart Department of Medical Physics of the College of Health Sciences offers a master of science degree with a major in medical physics.

Admission Requirements

In addition to the basic requirements established by the Graduate College, the division of medical physics has requirements for admission to its programs.

Radiological Sciences Master of Science Program. Applicants for admission to the division will be evaluated initially by the division director and the admissions committee. Considerations will include the applicant's overall academic record, evidence of previous ability to pursue independent studies successfully, recommendations from the applicant's former faculty, and a description of the applicant's scientific research interests. The program director also will determine whether additional supporting evidence would aid evaluation of the application and, if so, will make appropriate arrangements with the

applicant. An interview may be requested.

The Graduate Record Examination (GRE) is not required, although it is highly recommended that applicants take the verbal, quantitative, and the appropriate advanced tests. Further information regarding the GRE may be obtained from the Educational Testing Service, P. O. Box 6004, Princeton, New Jersey 08541-6004.

Applications for admission will be accepted by the division for any quarter of the year. Applicants to the program should have received an M.D. or D.D.S. degree from an accredited institution prior to enrolling in the program. The studies required for the masters degree may be carried out concurrently with a residency program provided prior approval is given by the chairmen of the departments and divisions involved. A cumulative grade point average of 3.0 (A=4.0) is required.

Medical Physics Doctor of Philosophy Program. The Division of Medical Physics seeks students who demonstrate motivation toward research and teaching, as well as a capacity for independent study in their undergraduate or graduate education. Applicants for admission to the division will be evaluated initially by the division director and the admissions committee. The division director will determine whether additional supporting evidence would aid evaluation of the application, and, if so, will make appropriate arrangements with the applicant. An interview may be required.

All applicants must meet the following criteria for admission:

- hold a bachelor of science degree in physics from an accredited college or university or
- a bachelor of science degree in physical science with a minor in physics from an accredited college or university
- completion of course work in physics--mechanics, heat, atomic and nuclear physics, thermodynamics, and quantum mechanics. If the student is deficient in physics courses, additional courses will be required.
- completion of one year of college chemistry with laboratory. This requirement may be satisfied within the Ph.D. program.

- cumulative grade point average (GPA) of 2.5 in college work
- cumulative science GPA of at least 3.0 in college work
- prior success in pursuing independent study
- foreign applicants submit Test of English as a Foreign language (TOEFL) results
- results of the GRE taken within the last three years. It is recommended that the GRE subject examination in physics also be submitted.
- three letters of recommendation from previous college or university instructors
- a written description of the applicant's scientific research interests

Applications for admission will be accepted for all quarters of the year. Incoming students with no graduate training should apply for the fall quarter due to the scheduling of required courses. Applications for the fall quarter will be accepted until March 1, and a decision will be sent to the applicant by April 15. Later applications for the fall quarter may be accepted if space is available. Students with research experience or medical school education may begin graduate study during any quarter of the year.

Curriculum

Radiological Sciences Master of Science Program. The studies required for the master's degree may be carried out concurrently with a residency program, provided prior approval is given by the chairman of the department in which the resident is being trained. The Master of Science degree is designed to be completed by full-time students in one calendar year; part-time students will, of course, required more time. Each student will submit a thesis on his/her research and will take a final examination in defense of the thesis.

Residents in Therapeutic Radiology. The following courses are required for residents in therapeutic radiology:

MPH 457, 458, 481, 482, 483, 484, 486, 492, 531

In addition to these courses, MPH 598, Thesis Research, is required. The sequence of courses MPH 501, 502, and 503 may be chosen as electives in the master's degree program.

Residents in Diagnostic Radiology and Nuclear Medicine. The following courses are required for residents in diagnostic radiology and nuclear medicine:

MPH 457, 458, 460, 461, 464, 465, 471, 475, 490

In addition to these courses, MPH 598, Thesis Research, is required. The sequence of courses MPH 501, 502, and 503 may be chosen as electives in the master's degree program. Various other elective courses are available at Rush University.

Medical Physics Doctor of Philosophy Program. The Ph.D. program is based on a study and research schedule that should be completed within four to five years of full-time study beyond the bachelor's degree. The minimum residency requirement established by The Graduate College is eight quarters of full-time enrollment. During the first year, the student will be committed to completing required course work and deficiencies, if any. During the second and later years, required courses will be completed, and the student will be encouraged to enroll in appropriate advanced courses within The Graduate College. Ordinarily, research will begin during the latter part of the second year, and it will continue as the primary activity throughout the third and later years. The following course are required:

MPH 457, 458, 460, 463, 471, 481, 482, 486, 491, 501, 502, 503, 504, 505, 506, 531, 542, 561, 571, 590, 699, PHY 555, ANA 465

A student may choose electives from a variety of other courses available at Rush University.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections).

Radiological Sciences Master of Science Program. A minimum of 48 quarter hours of required courses, including research, is required for the Master of Science degree with a major in Radiological Sciences. Of these a minimum of 18 quarter hours of medical physics courses (excluding research) is required. A minor is not necessary in this program. Students must maintain a cumulative GPA of 3.0. The maximum amount of credit acceptable for transfer from another institution is 12 quarter hours. There is no foreign language requirement. The time limit for completion of the program is five years.

Academic Progression. The graduate program director will function as the academic advisor to the new student. The director will determine the course schedule with the student and will monitor the student's progress.

As soon as practical after the student has entered the program, he/she should select the area of research he/she wishes to consider for the master's thesis. The student should seek out a faculty member of the Division of Medical Physics who will accept the supervisory role of scientific advisor.

Once an advisor is chosen, the advisor and the student will assemble an advisory committee of five members, at least three of whom are on The Graduate College faculty. The advisor will serve as the chairman of the advisory committee. The committee will be responsible for adapting continued course work to the student's needs and for providing advice and evaluation at all stages of the graduate education. Specifically, the committee will evaluate the thesis proposal, the thesis, and the performance at the thesis defense.

Before the specific thesis research is begun, a detailed proposal, including a literature review, must be presented to the student's, advisory committee. At that time, the student will be required to defend orally, demonstrating an understanding of the goals and methods of his/her study. When the committee is satisfied with the proposal, the student may begin the research project. Although research will be closely supervised by the major advisor, attainment of the research goals is the student's responsibility.

Thesis Defense. Thesis. The thesis is a scholarly work based on an original project. Its format and review by the advisory committee and dean must comply with the requirements of The Graduate College.

Thesis Defense. The final examination may be taken upon acceptance of the thesis by the dean of The Graduate College and must precede the projected date of graduation in accordance with a schedule determined by The Graduate College.

Oral defense of the thesis serves as the final examination in partial completion of the requirements for the M.S. degree. The examining committee consists of a minimum of five faculty members approved by the division director and graduate studies committee. At least three examiners, including the student's principal and associate advisors, will be selected from within the division. Two examiners may be selected from outside the division, preferably, though not necessarily, from outside the University. Distinguished scientists may be

invited as guests of the division to examine the thesis and to participate in the final defense.

Passing the final examination is based upon the recommendation of the majority of the examiners. In the event that the students fails to pass the final examination, the student may appeal to the dean of The Graduate College who, upon consultation with all parties concerned, may recommend a course of action to be taken.

Medical Physics Doctor of Philosophy Program. A minimum of 40 quarter hours of medical physics courses (excluding research) must be completed successfully. Additionally, at least 18 quarter hours of minor course credit are required. A grand total of 150 quarter hours of academic credit is required for the Ph.D. degree. A maximum of 60 quarter hours of transfer credit will be accepted. There is no foreign language requirement.

Academic Progression. The graduate program director will function as the academic advisor to the student during the first year. The director will, during this time, determine the course schedule with the student and will monitor the student's progress.

Toward the end of the first year, the student will be expected to take a qualifying examination that covers basic physics and courses in the division that have been completed. This examination includes written and oral components. Based on the results of the qualifying examination and performance in course work, the student may be permitted to continue in the program without conditions. If the student's performance is poor, he/she may be either permitted to continue with added requirements of a remedial nature or dismissed from the University.

During the second year, the student should select the area of research he/she wishes to consider for the Ph.D. dissertation. The student should seek out a faculty member of the Division of Medical Physics who will accept the supervisory role of the scientific advisor.

Once an advisor is chosen, this advisor and the student will assemble an advisory committee of five members, at least three of whom are on The Graduate College faculty. The advisor will serve as the chairperson of the advisory committee. The committee will be responsible for adapting continued course work to the student's needs and for providing advice and evaluation at all stages of the graduate education. Specifically, the committee will evaluate the dissertation proposal, the dissertation, and the performance at the dissertation defense.

Toward the end of the second year or at the beginning of the third year, the student will be

expected to take a preliminary examination. The preliminary examination consists of a written comprehensive and an oral examination. This examination can only be given on the recommendation of the advisory committee after completion of all required courses and elimination of any deficiencies. Administered by the faculty of the division, the examination tests general knowledge of medical physics. The level of performance on this examination will determine whether the student is admitted to candidacy for the Ph.D. degree. Students who fail to gain admission to candidacy may be retested one time only, six to twelve months after the original examination date.

Before the specific dissertation research is begun, a detailed dissertation proposal, including a literature review, must be presented to the student's advisory committee. At that time, the student will be required orally to defend the proposal, demonstrating an understanding of the goals and methods of his/her study. When the committee is satisfied with the proposal, the student may begin the research project. Although research will be closely supervised by the major advisor, attainment of the research goals is the student's responsibility.

Dissertation Defense. Dissertation. The dissertation is a scholarly work based on an original project. Its format and review by the advisory committee and dean must comply with the requirements of The Graduate College.

Dissertation Defense. The final examination may be taken upon acceptance of the dissertation by the dean of The Graduate College and must precede the projected date of graduation in accordance with a schedule determined by The Graduate College.

Oral defense of the dissertation serves as the final examination in partial completion of the requirements for the Ph.D. degree. The

examining committee consists of a minimum of five faculty members approved by the division director and graduate studies committee. At least three examiners, including the student's principal and associate advisors, will be selected from within the division. Two examiners may be selected from outside the division, preferably, though not necessarily, from outside the University. Distinguished scientists may be invited as guests of the division to examine the dissertation and to participate in the final oral defense.

Passing the final examination is based upon the recommendation of the majority of the examiners. In the event that the student fails to pass the final examination, the student may appeal to the dean of The Graduate College who, upon consultation with all parties concerned, may recommend a course of action to be taken.

Research Activities

Research by medical physics faculty members includes: the study of basic mechanisms by which radiation transfers energy to biological and chemical materials; the development of new techniques for detecting and measuring various radiations used in the detection, diagnosis, and treatment of cancer; the application of radioactive tracers to diagnosis and to the study of metabolic processes; and the optimization of physical parameters for specific studies in diagnostic medical imaging including radiology, computerized radiography and tomography, as well as nuclear magnetic resonance imaging and radionuclide imaging and dosimetry in radiation therapy, radiation protection, radiobiology and hyperthermia.

Rush University issues an annual research report that summarizes research projects of the entire faculty.

Division of Pharmacology

Philosophy

The Division of Pharmacology offers study and research programs leading to the degree of doctor of philosophy. The division is composed of faculty members active in basic medical research, pharmaceutical sciences, and clinical investigation. Such diversity of interest allows this division to design doctoral programs that satisfy the needs of students interested in most aspects of pharmacology. A program of study has also been created for students who wish to enroll concurrently in this division and in Rush Medical College.

The goal of the division is to provide excellent training in research and teaching. Each student has the opportunity to participate in research of the most basic chemical nature and in research aimed at solving disease problems. Emphasis is also placed on the development of drug analysis methods, for research and as a practical laboratory problem in a service setting, especially as related to drug trials and other areas of clinical investigation. Teaching exposure is encouraged throughout the entire training period.

Admission Requirements

In addition to the basic requirements established by The Graduate College, the Division of Pharmacology has the following requirements for admission to its program. The academic experience of the student will usually include a minimal undergraduate GPA of 3.0 overall and a 3.5 in science courses (A=4.0). Recommended courses include calculus, college physics, organic chemistry, and physical chemistry. Students with deficiencies in basic course work can be admitted to the program. However, for any such applicant, the division will retain the right to require extra course work that will then be considered a prerequisite for admission to candidacy for the Ph.D. degree.

The Graduate Record Examination (GRE) is not required by the division although it is highly recommended that applicants take the verbal, the quantitative, the analytical, and the appropriate advanced tests. Students should minimally achieve an aggregate score of 1500 on the three basic parts of the test.

Applications for admission will be accepted by the division for all quarters of the year.

Incoming students with no graduate training should consider applying only for the fall quarter due to the scheduling of the basic required course sequence. Students with research experience can begin graduate studies during any quarter of the year, and such applicants should expect to continue their research or begin an active research program within the division at the time of their admission. In either case, early application is recommended because of the small number of places available.

Applications will be evaluated by the director and by the admissions committee of the Division of Pharmacology. The admissions committee will base its recommendation regarding admission of the applicant on several factors. All prior academic experience and the letters of recommendation will be evaluated for an indication of the applicant's potential for success as a graduate student. A statement by the applicant describing his/her own goals and motivation will be studied to determine the compatibility between the applicant's goals and the capabilities of the graduate program. With rare exceptions, all applicants will be required to appear for an interview with faculty members in the Division of Pharmacology before admission to the program. A recommendation from the division regarding the applicant's admission will be presented to the dean and The Graduate College Council for final approval.

Curriculum

This program is based on a study and research schedule that should be completed within three to six years of full-time study. During the first year the student is usually committed to completing required course work and eliminating deficiencies, if any. Elective courses in other divisions will be available throughout the program. During the second and later years, required courses are completed and the student is encouraged to enroll in appropriate courses within this and other divisions of The Graduate College. Research ordinarily begins during the first year and continues as the primary activity throughout the second and later years.

The required courses for all graduate students in pharmacology are biochemistry, medical physiology, biostatistics, medical pharmacology, advanced topics, pharmacokinetics, and laboratory instrumentation.

Concurrent M.D./Ph.D. Program

The graduate program in pharmacology will be offered to the student who has been admitted to both the graduate program in the Division of Pharmacology and to Rush Medical College and who elects to begin both programs of study in the same year. During the first two years, the student will complete the required courses in the pharmacology graduate program as well as the regular medical college curriculum for that period of time.

The student will then interrupt Rush Medical College enrollment and concentrate full time on graduate studies in the Division of Pharmacology. When the graduate work is complete the student will continue with the clerkship program in the medical college.

The student will be strongly encouraged to begin a research program during the summer before course work begins. Research can be included in the curriculum at any time. After the second year, the student will begin full-time enrollment in The Graduate College, and the clerkship program in Rush Medical College will

be delayed until the graduate work is complete. During this time, the student will complete the required course work, enroll in advanced or elective courses, pass the comprehensive qualifying examination, present and defend a suitable dissertation protocol, complete dissertation research, and present and defend an acceptable dissertation. The Ph.D. degree will be awarded by Rush University upon the successful completion of this training program. The student will then continue with the clinical curriculum of Rush Medical College.

Students who are admitted to the Division of Pharmacology graduate program and to Rush Medical College but who do not begin these study programs at the same time may also benefit from this combined curriculum. An individual study program which includes available aspects of this curriculum can be designed for such students.

Students who enter this program are subject to the full conditions and requirements of both colleges.

Curriculum: Pharmacology

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
BCH 471	Medical Biochemistry I	6	PHR 501	Medical Pharmacology I	5
PHY 451	Physiology I	5	PHR 598	Research	7
PVM 541	Biostatistics I	4			
		15			12
Winter			Winter		
BCH 472	Medical Biochemistry II	6	PHR 502	Medical Pharmacology II	4
PHY 452	Physiology II	5	PHR 551	Pharmacokinetics	3
PVM 542	Biostatistics II	3	PHR 598	Research	5
		14			12
Spring			Spring		
PHR 521	Lab Instrumentation	3	PHR 503	Medical Pharmacology III	2
PHR 598	Research	9	PHR 598	Research	10
		12			12
Summer			Summer		
PHR 598	Research	12	PHR 598	Research	12

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Academic Progression. Academic Advisor. Major Advisor. The graduate division director functions as the academic advisor to the student during the first year. The director, during this time, determines the course schedule with the student and monitors the student's progress. Beginning in the first year, the student is expected to gain laboratory experience. This activity is intended to lead to the definition of research interests and to the selection of a major advisor. The major advisor, a faculty member in the Division of Pharmacology, then accepts the supervisory role in the development of the student as a scientific investigator.

Academic Requirements. Each student will be responsible for satisfactorily completing the sequence of required courses. This division requires a grade of B or better in all required courses. Elective courses may be taken for a grade of Pass/No pass. Students will be allowed adequate opportunity to remedy a course grade deficiency on an individual basis. However, failure to maintain adequate grades in courses is considered cause for dismissal.

Advisory Committee. After a major advisor is chosen, this person and the student assemble an advisory committee. The committee consists of five graduate college faculty members, no more than four to be from the Division of Pharmacology. This committee is responsible for adapting continued course work to the student's needs and for providing advice and evaluation at all points in the graduate education experience. Specifically, the committee evaluates the dissertation protocol, the dissertation and performance at the dissertation defense.

Comprehensive Qualifying Examination. Toward the end of the second year the student usually is expected to take the comprehensive

qualifying examination. This examination can only be given with the recommendation of the division director after elimination of all deficiencies and completion of all required courses. The examination is designed to test general knowledge in pharmacology, and it is administered by the Division of Pharmacology faculty. The level of performance on this examination determines if the student is admitted to candidacy for the Ph.D. degree. Students who are unsuccessful in gaining admission to candidacy for the Ph.D. degree may retest one time only, six to twelve months after the original examination date.

Dissertation Research. Before the specific dissertation research is begun, a detailed dissertation protocol, including a literature review, must be presented to the Advisory Committee. At this time the student is required to defend orally the research proposal by demonstrating an understanding of its goals and of the methods used to achieve those goals. When the committee is satisfied that these qualifications have been met, it recommends that the student begin the research project. Although the research is closely supervised by the major advisor, the student is expected to accept the responsibility for attainment of the research goals.

Once the research is complete, the student presents a reading copy of the dissertation to the Advisory Committee for its evaluation and comments. The committee is responsible for offering suggestions to the student on how the work may best be presented in a dissertation. Following this advice, the student completes the dissertation and makes a formal presentation of it to the Advisory Committee as the dissertation defense.

The awarding of the Ph.D. degree requires the demonstration of a capability for independent research and a contribution to scientific knowledge as judged by the Advisory Committee, the division faculty, the dean, and The Graduate College Council.

Research Activities

Research experience is being offered in the following general areas: drug effects on cellular metabolism, drug metabolism, pharmacogenetics, cardiovascular pharmacology, biochemical pharmacology, neuropharmacology, and clinical pharmacology. Current research projects that may be available to graduate students in the Division of Pharmacology include: mechanism of action of various redox drugs as investigated by studies of red cell metabolism; hereditary and acquired disorders of the pentose phosphate pathway, glycolysis, and hemoglobin; animal models of tardive dyskinesias; parkinsonism and related disorders; slow acetylation as related to drug effects and disease such as lupus erythematosus; clinical drug testing (Phase I and II) analgesic properties of cholinergic drugs in relation to the morphine receptor theory; pharmacology of primaquine and mefloquine;

clinical pharmacology of methotrexate; prostaglandin metabolism in endotoxin shock; pharmacology of platelet activating factor; and clinical pharmacology of new antibiotics and new drug assays.

Service and Clinical Activities

The graduate division includes faculty members who are involved in service and clinical research activities. The service laboratory designs and performs selected drug assays on patient samples for clinical cases where the monitoring of drug levels is necessary for effective therapeutics or to avoid toxicity. The Clinical Pharmacology Unit tests new drugs for toxicity and for effectiveness in human subjects. All students are encouraged to participate in these activities even though their major area of interest may lie elsewhere.

Division of Physiology

Philosophy

The program of the graduate Division of Physiology provides state-of-the-art training in the most quantitatively oriented areas of modern physiology and biophysics. To this end a limited number of students are invited to join particular research laboratories as predoctoral fellows, and most of the training occurs in this setting. The sole goal of the faculty is excellence in research and it expects to develop a nucleus of students who will become future leaders in the field.

Admission Requirements

Students who desire to specialize in this program are strongly advised to obtain a broad scientific foundation, including work in the related sciences. Courses in some or all of the following fields are suggested for attainment of this objective: physics, including electronics; chemistry, including physical chemistry; mathematics, including differential equations; molecular and cell biology or cell physiology.

An applicant who holds a degree from an accredited institution will be considered for admission on the basis of the following criteria:

- an undergraduate record of superior quality demonstrating proficiency in quantitative science;
- a well organized plan for graduate study and research compatible with expertise in the division;
- recommendations from at least three college faculty members acquainted with the character of the applicant;
- ability to function in a program stressing an independent approach to the acquisition of knowledge;
- other materials required by the division director.

The Graduate Record Examination (GRE) is recommended but is not required. Except in unusual cases, the minimum prerequisites for admission will be the attainment by the applicant of a 3.0 overall average ($A = 4.0$) in undergraduate studies with a 3.5 average in science courses, preferably including two years of physics or engineering, inorganic and organic chemistry,

physical chemistry, advanced calculus, ordinary differential equations, cell biology or cell physiology.

Applicants for admission to the division will be initially evaluated by the division director and Advisory Committee. Considerations will include overall academic record, evidence of previous ability to pursue successfully independent studies, recommendations of the applicant's undergraduate faculty, and the description of the applicant's scientific research interests. The division director also will determine whether additional supporting evidence would aid evaluation of the application and, if so, will make appropriate arrangements with the applicant to submit such evidence.

Applications judged by the division director to demonstrate satisfactory credentials and interests compatible with the research facilities of the faculty will then be evaluated by all faculty members with expertise in the area(s) of interest of the applicant. Considerations in this phase will include not only academic ability but also the resources available to support research in the indicated area. An interview may be requested. Selection of applicants will be by invitation of a faculty member in the division willing and able to serve as the student's principal advisor and research sponsor after endorsement of the selection by the division director, The Graduate College Council, and the dean. In special circumstances, exceptions to this procedure may be made for students with unusual promise but with no firm commitment to a particular area of research. In such cases, the program director will serve as interim principal advisor. Finally, in the case that the division director would be the principal advisor of a student, the physiology department chairperson shall assume the duties of division director with respect to that student.

Curriculum

Courses. Usually prior to starting the program students will have selected a faculty member as principle advisor. All students admitted to the division will be required to enroll in the medical physiology course as soon as possible after admission, and before the dissertation proposal, and obtain an average grade of B or better over all quarters. The student will, in the first two years enroll in courses appropriate to the student's research interests as agreed upon in

consultation with the principal advisor and the director of the graduate program.

It is anticipated that courses deemed essential to the student's graduate training by the division occasionally will not be available in the Division of Physiology or other divisions of The Graduate College. In this case, arrangements will be made for the student to enroll in such courses at other institutions and performance in these courses will be required to be at the same level as for courses at Rush. In certain circumstances, a program of supervised independent study may be recommended as an alternative to particular course work.

Individual course requirements may be exempted on the basis of a past academic record or by the successful completion of a special examination covering the content of the required course. Such exemptions will not be made automatically solely on the basis of a past academic history but will be carefully judged on an individual basis by the division director and Advisory Committee. Unless waived, students will enroll in eight credit hours of course work outside the Division of Physiology.

Course Offerings. The following courses will be available, subject to demand and limitation, to graduate students within The Graduate College:

- PHY 451 Physiology I
- PHY 452 Physiology II
- PHY 502 Introductory Membrane Biophysics
- PHY 503 Physiology of Striated Muscle
- PHY 504 Neurophysiology
- PHY 521 Mathematical Methods
for Physiologists
- PHY 523 Circuit Theory and Practical Design
- PHY 531/532 Physiological Modeling
- PHY 590 Special Topics in Physiology
- PHY 598 Introduction to Research
- PHY 640 Applied Electrophysiology
- PHY 641 Molecular Mechanisms in Control
of Ion Permeability
- PHY 651 Advanced Topics in Muscle
Physiology
- PHY 653 Problems in Synaptic Physiology
- PHY 655 Sensory Neurophysiology
- PHY 690 Research Topics in Physiology
- PHY 699 Dissertation Research

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Dissertation Proposal. Upon admission to the division, the student and his/her principal advisor shall begin to make preparations for a proposal upon which the student's original research project will be based. Such preparations will include intensive study of the literature in the student's field of interest, instruction in the basic laboratory skills necessary for professional development in the field, and any other requirements established by the principal advisor and division director, in addition to the course requirements discussed above.

No later than 36 months after admission, the candidate shall present to his/her dissertation committee an original proposal for contribution to knowledge in his/her area of specialization. It shall include an extensive review of the relevant scientific literature, a description of the technical aspects of the proposed studies, an outline of the anticipated experimental approach to the major problem of interest, and a discussion of possible results and their interpretation. The student will be expected to defend both his/her proposal and general ability to achieve professional competence before this committee.

The dissertation committee shall have at least three members: the principal advisor; the division director; and, whenever possible, an individual outside the institution with national stature in the candidate's field of interest selected jointly by the candidate, principal advisor, and division director. In addition to evaluating the content of the dissertation proposal, the outside member shall have a responsibility to maintain close and frequent contact with the student and principal advisor and to advise the division director concerning the progress of the academic program. Ordinarily, the dissertation committee shall be constituted as soon as possible after admission of a student to the division.

The dissertation proposal may be submitted to the faculty prior to completion of course requirements in order to enable research activity to begin, but the student will not be formally admitted to candidacy until this is satisfactorily completed.

Candidacy. Upon acceptance of the dissertation proposal, the student shall be admitted to candidacy for the Ph.D. and shall be expected to devote fully his/her energies to the program. A minimum residency requirement of one calendar year following admission to candidacy must be met by all students unless special exceptions

are granted by the division director and dean. The principal advisor shall make frequent reports to the division director concerning the student's progress, and should either faculty member or the candidate feel it appropriate, the dissertation committee can be called into session to judge the student's continued participation in the graduate program or to determine possible alterations in the area of his/her research efforts. In addition, the student and principal advisor will be expected to consult periodically with the other committee members who may also request the division director to call formal meetings of the dissertation committee.

Conflicts between the student and/or any members of the dissertation committee not resolvable by the full committee may be referred to the advisory committee of the division or higher authority as specified in the policies and procedures of The Graduate College.

The degree of doctor of philosophy is given in recognition of high attainment and ability in a particular field of scientific research as evidenced by submission of a dissertation showing power of independent investigation and forming an actual contribution to existing knowledge. Such dissertation will be submitted to the candidate's dissertation committee for review and defended orally at least three months before the degree is granted. The dissertation committee will ordinarily request an evaluation of the candidate's dissertation by a scientist of national stature not affiliated with Rush University.

Acceptance of the dissertation by the dissertation committee will be reviewed by The Graduate College Council and the dean, along with the candidate's entire academic performance in The Graduate College. Determination of completion of all requirements will result in the dean's recommendation that the degree be awarded at the next scheduled commencement exercises of Rush University.

Should the candidate not have submitted a dissertation three years after admission to candidacy, the dissertation committee shall be convened to evaluate the candidate's progress, and, if proper, to suggest alteration in the program.

Research Activities

Individual Research Projects

Viral Fusion. Fusion between membranes is a widely occurring cellular process. It is a critical event in exocytotic release of neurotransmitters and hormones, fertilization of egg by sperm, viral infection of cells, and intracellular membrane and protein trafficking. To study the process in a biophysically controlled system, Fred Cohen and Lane Niles are

examining the fusion of influenza virus to planar membranes. Influenza virus was chosen because the single protein, the hemagglutinin (HA) glycoprotein, responsible for both binding and fusion, has been cloned and crystallized and its structure resolved at 3 Å. They load the virions with the fluorescent dye octadecylrhodamine B (R18) at self-quenching concentrations. Upon membrane fusion, the dye is released into the planar membrane and as it diffuses and becomes diluted, the concentration-dependent quenching is relieved. This results in a flash of light when the bilayer is observed by video fluorescence microscopy. Flashes occur only as a result of membrane fusion and so the flash assay allows systematic study of virion-planar membrane fusion.

When planar membranes were made with phospholipids, fusion was observed but it was independent of pH, regardless of whether the lipids were neutral or charged, homogeneous or heterogeneous. However, it is well-known that in cellular systems influenza virus fuses in a pH-dependent manner -- fusion of viral envelopes and endosomal membranes occurs when the endosome is acidified, thereby releasing the nucleocapsid into the cellular cytosol. Thus, while the minimal requirement for fusion is a phospholipid bilayer, additional constituents are required for low-pH stimulated fusion. Because terminal sialic acids on both glycoproteins and glycolipids of host membranes are the receptors for binding influenza, Cohen and Niles added gangliosides to the membrane: these glycolipids contain terminal sialic acids. pH-dependent fusion occurred for all lipid mixtures when gangliosides were included in the membrane. Furthermore, rates of fusion at pH 7.4 were insignificant with gangliosides, much lower than without gangliosides, a clear indication that HA was stabilized by attaching to the gangliosides. When glycolipids without sialic acids were included in the lipid mix, then pH-independent fusion was obtained, as occurred with phospholipids alone. Thus, the minimal requirement for pH-dependent fusion is a bilayer membrane which contains terminal sialic acids. These results indicate that sialate acts as an agonist in conferring pH-dependent fusion. To explore further this idea they incubated virus with free sialyllactose. (The sialate is coupled to the lactose with the same linkage as occurs in gangliosides. It is, in effect, the relevant carbohydrate moiety removed from the ganglioside backbone). The sialyllactose inhibited fusion to ganglioside-containing membranes, which is expected because the HAs of the virus were fully occupied by sialate and hence not able to bind to the gangliosides. More surprisingly, the sialyllactose also inhibited fusion

to phospholipid membranes. Thus, occupying the sialate-binding site on the HA inhibited fusion even though the membrane does not contain sialate. They have developed a simple state model which accounts for these phenomena.

During these studies it became clear that a computer automated system was needed to recognize flashes to quantify fusion routinely. To recognize flashes, Cohen and Niles analyze sequential video frames; they identify time varying regions as objects and classify them as either flashes, moving particles, or noise. With user-chosen input parameters, the flash detection system recognizes all flashes, either bright or dull, temporally long or short, spatially large or small. Although the detector does not miss flashes, it sometimes incorrectly identifies non-flashing objects as flashes. The correctness of assignment is checked by eye. This procedure is practical and greatly reduces human effort. To illustrate, for 512 x 512 pixels and 30 frames/sec there are 7.5 MBytes of raw data per second. A person cannot routinely determine flash rates by watching full frames (to say nothing of characterizing flash brightness profiles) because large rates with numerous concurrent flashes can occur. But judging the computer-identified flashes requires significantly less effort. After editing, the time series for occurrence of flashes is generated, yielding the probability density function for the initiation of flashes. This density is used to test whether models for the activation of fusion could give rise to the observed temporal flash pattern.

Protein insertion into membranes and voltage-dependent channels. In an independent project, Fred Cohen is collaborating with Dr. William Cramer of Purdue University on studies of colicin E1 in membranes. Colicin E1, one of a family of colicin proteins, is plasmid-encoded by some strains of *E. coli*, kills other strains of *E. coli* that do not harbor the producing plasmid by forming voltage-dependent ion channels in the inner membrane of the attacked cell, and has a known crystallographically-determined structure in solution. It is, thus, an excellent model to determine the physico-chemical principles that control protein translocation from an aqueous phase into phospholipid bilayer membranes and the molecular basis for voltage-gating.

Recently, Cohen and Cramer have been investigated the structural pattern and changes that characterize the translocation-competent state; the folding pattern of the amino acids has been determined. They previously showed that acidic pH or small amounts of detergents, well below their critical micelle concentrations greatly augments channel formation. They have now shown that a hydrophobic domain of the protein,

becomes exposed to the aqueous phase when the pH is lowered or detergents added. Further, these treatments increase the protein's susceptibility to proteases. While for other proteins this fingerprint of changes has sometimes been taken to indicate massive unfolding, such is probably not the case with colicin: direct measurements show an unaltered Stokes radius. The changes observed probably reflect increased mobility of residue side chains, which allows accessibility of both protein residues to proteases and the hydrophobic core to water. In additional studies, Cohen and Cramer have used site-directed mutagenesis mutants to characterize the folding pattern of this 35 residue stretch within the bilayer when the channel has formed. Activity and ion selectivity measurements showed that this hydrophobic stretch spans the bilayer twice in a α -helical hairpin loop in the open channel.

Pulmonary Cells. Thomas DeCoursey has had a long-term interest in ion channels. This interest encompasses both the properties and function of ion channels (i.e. mechanisms of ion permeation, block, etc.) and the relationship between ion channel function and the physiological or pathophysiological behavior of cells. Due to a quirk of nature perhaps, the cells he has studied have mainly K^+ channels; consequently most of his research has been on K^+ channels, although other channels are presently under study.

Type II alveolar epithelial cells. The main project in the lab is "patch-clamping" type II alveolar epithelial cells. These cells: (1) produce, secrete, and take up (i.e. reprocess) pulmonary surfactant, a substance which keeps alveoli from collapsing; (2) are involved in fluid and electrolyte transport, at least in vitro; and (3) after injury to the lung, proliferate and differentiate into type I epithelial cells, which are flat non-secretory cells covering about 95% of the alveolar surface. A long-term goal is to discover mechanisms by which ion channels are involved in these functions of type II cells, by correlating the presence and/or activation of these channels with the physiological functions of the cells.

The first step is to characterize the ion channels in type II cells. In collaboration with Dr. Elizabeth R. Jacobs, Dr. DeCoursey has described two types of K -selective ion channels in type II cells, one resembling the delayed rectifier of excitable cells, the other is identical to a channel described previously in mouse T lymphocytes. Both of these channels open when the membrane is depolarized, inactivate with maintained depolarization, and are blockable by

external tetraethylammonium ions (TEA). Delayed rectifier channels are present in most type II cells studied, the other type is found infrequently. Comparison of other properties of cells expressing each type of K^+ channel revealed that cells with delayed rectifier channels had larger specific capacitance, suggesting that their membranes are more folded. Future studies may reveal whether these two channels are present in functionally different subtypes of type II cells. An important aspect of the characterization of ion channels is their pharmacologic sensitivity which ultimately may be correlated with that of surfactant turnover or other physiological functions of type II cells. The search for K^+ channel blockers has led to several interesting observations on mechanisms of block, specifically regarding the site of action of the blockers and several examples of state-dependent block (e.g. that open channels are blocked preferentially).

Other ion channels present in alveolar epithelial cells, including a chloride conductance and a novel hydrogen ion conductance, are currently being studied.

Endothelial cells. A second project involves endothelial cells. These cells line blood vessels, and have recently been implicated in transducing humoral signals to vascular smooth muscle cells. Cultured bovine pulmonary artery endothelial cells have inwardly-rectifying (IR) K^+ channels which are present in most membrane patches and in cells studied in the whole-cell configuration. Endothelial cells are a nearly ideal preparation in which to study various biophysical properties of IR channels, because there is usually only negligible contamination by other ion channels, and small spherical cells can be selected to optimize electrical recording conditions. Using this preparation, Drs. DeCoursey and M.R. Silver have demonstrated that IR channels have an intrinsic gating mechanism which operates independently of block by internal Mg^{2+} .

Lymphocytes. The third project in the lab involves T lymphocytes from a mutant strain of mice, which are a rich source of type 'I' K^+ channels. Drs. DeCoursey and M. S. Shapiro studied the ion selectivity and permeation properties of these channels. One of the most interesting observations is that permeant ions affect the gating kinetics (the opening and closing) of these channels. Rb^+ in the external solution slows closing by a factor of 14. The simplest mechanism to account for the results is an external modulatory site which binds monovalent cations and affects closing kinetics depending on the species of ion bound. Closing

kinetics are mainly determined by the species of permeant ion in the external solution, but under certain conditions an effect of the internal ion can be observed. The proposed modulatory site must therefore be either within the permeation pathway or in the outer vestibule, near enough to the pore mouth that local ion concentrations are altered when outward current is flowing.

Ionic permeation and excitation-contraction coupling. Dr. Eisenberg's laboratory is concerned with the mechanisms by which ions move through open channels. Measurement techniques have outstripped our ability to analyze results and so work is aimed at theoretical issues necessary to understand the experimental data, perhaps to even design the experiments. Drs. Barcilon, Chen, and Eisenberg have constructed a model of a channel as a hole in a dielectric, allowing charge to exist in all its form, and current to flow. Using asymptotic analysis, they have reduced this formidable set of partial differential equations to tractable form, and have shown how classical physiological approximations can be derived. Under some conditions those approximations are valid; under others, they are not. Experiments can easily be performed to test their dielectric theory; parameters can be determined in one set of conditions, and the experimental results predicted (without the freedom of adjustable parameters) in another.

The parameters of the theory just described are macroscopic averages of the atomic properties of the molecules making up a channel. Drs. Chen, Eisenberg, and Elber (of the University of Illinois-Chicago, Department of Chemistry) are computing the motions of the individual atoms of the gramicidin channel. The fundamental time increment in these calculations is 10^{-15} sec, so substantial computing resources are needed to reach even picoseconds. While such calculations are not likely to reach biological time scales for decades, they are needed to understand and choose the parameters of more classical models.

Drs. Eisenberg, Chen, Barcilon, and Ratner (Department of Chemistry, Northwestern University) are seeking a model between the atomic and classical. Building on Dr. Ratner's experience with crystalline channels, in physical materials, a stochastic differential equation is used to describe ionic motion in the open channel.

Drs. Levis, Eisenberg, and Lynn (Brookhaven National Laboratory) are seeking to improve the measurement of channels, using the techniques of high energy physics. A physicist recognizes a particle by the type of current it induces in a detector; a physiologist recognizes a channel by the type of current it passes into an

electrode. The problems of analyzing these small currents are quite similar, but and they seek to exploit these similarities to allow some use in biology of the resources devoted to high energy physics for many decades.

Dr. Eisenberg, John Tang, and Jinsong Wang continue their studies on the sarcoplasmic reticulum of skeletal muscle. They have developed a skinned preparation of the lobster remotor muscle (a preparation without a membrane) and shown that it has normal contractile properties. Thus, channels recorded from this preparation are in a more normal state than those subjected to extraction, purification, and reconstitution.

Dr. Eisenberg, John Tang, and Jinsong Wang have developed a system of microplumbing to allow easy change of solutions within a patch pipette (itself some 0.001 mm in diameter). Measurements with patch pipettes are made every day in hundreds, if not thousands of laboratories. If the solution changing technique is easy enough, it seems likely that many of these laboratories will adopt it.

Human Motor Control. The Motor Control Laboratory attempts, at a number of levels, to understand how the nervous system controls the many movements of the body. Even the seemingly simplest actions require the precise and coordinated activation of many muscles if our movements are to serve our wills.

One of the simplest questions to ask is how a limb is moved from one position to another. Drs. Gerald Gottlieb and Mark Latash in collaboration with the Departments of Neurosurgery and Neurological Sciences, are studying this problem in normal, young adults; in the healthy elderly, in children with Down's Syndrome or cerebral palsy and in adult patients suffering from Parkinson's Disease, head trauma, and seizure disorders. For several years subjects have been asked to simply flex their elbow, while seated in a special device that measures the motion and the forces of the limb. Even in this simple situation, healthy people can make movements in many different ways. They can move different distances, at different speeds, with different degrees of accuracy, with different profiles of acceleration and deceleration or with different loads on the limb.

Several other major lines of research in the laboratory include:

- 1). A study of kinematic, kinetic, and electromyographic variables recorded spastic patients during their attempts at simple, single-joint voluntary movements and during evoked pathological reflexes before and after intrathecal delivery of baclofen.

- 2). Joint compliance in healthy and neurologically impaired subjects are studied. Drs. Gottlieb and Latash examine both healthy subjects and patients with Parkinson's disease and with Down Syndrome.

- 3). Development and experimental testing of the Equilibrium-Point hypothesis of motor control. According to this hypothesis, control of a muscle can be described with only one variable: threshold of its length-sensitive reflex.

- 4). Theoretical and experimental analysis of motor variability using the framework of the Equilibrium-Point hypothesis is being used for testing some of the predictions of the hypothesis.

- 5). Effects of practice of fast single-joint movements in Down Syndrome individuals. Dr. Latash is interested in the general patterns of improvement in these subjects and in the possibility of transfer of the effects of practice. He would like to bring performance of these individuals as close to "normal" as possible.

- 6). Testing of muscle fatigue. An index of fatigue is being developed with standardized motor tasks and episodes of short electrical stimulations superimposed on different levels of muscle contraction. This task is planned to be used for testing patients with chronic fatigue syndrome and other central and peripheral disorders leading to apparently increased fatigability.

Drs. Gottlieb and Latash are also beginning to study movements that are not constrained to a single joint. Under a grant from the National Institutes of Health, a new Motion Analysis Lab is being set up to allow them to study natural limb movements without restraining devices. This will also enable them to study patients with more severe motor disabilities who are unable to use our elbow device.

Nerve sodium channel. Voltage gated ionic channels occur in the membranes of all nerve and muscle cells. They play a central role in generating and transmitting electrical signals over the surface of these cells. Briefly, such channels are intramembrane proteins which change their conformation in response to changes in cell membrane potential; specifically the conformation changes from one which does not permit ions to cross the membrane (the "closed" conformation) to a conformation which opens a channel or pore through which specific ions can freely move across the membrane (this is referred to as the "open" conformation). These proteins derive their sensitivity to membrane potential from the presence of charged groups which senses the field and move in response to transmembrane voltage changes; the movement of these charged groups somehow is linked to the series conformational changes that transform the

channel protein from its closed to open conformation. This movement of charge produces a small but measurable current which is referred to as a gating current. Drs. Richard Levis and Roman Shirokov in collaboration with Dr. Eduardo Rios are measuring the gating currents associated voltage sensitive sodium and calcium channels in isolated guinea pig ventricular myocytes using the whole cell variant of the patch voltage clamp. Macroscopic (i.e., arising from many channels) ionic currents from these channels are also examined in the same preparation. Preliminary patch clamp measurements of the small (about 1 picoampere) ionic currents through single calcium channels have also recently been undertaken by Dr. Levis. Both channel types are of great importance to the electrical and contractile behavior of the heart. The measurement of gating currents is of considerable significance since it provides a more direct measurement of the sequence of voltage-dependent conformational changes (including transitions between nonconducting conformations) leading to channel opening than can be provided by any other type of measurement. Particularly when correlated with ionic current measurements (single channel and macroscopic), such studies can greatly refine our understanding of the molecular mechanisms underlying voltage dependent gating of ionic channels.

One problem with the whole cell cardiac myocyte preparation is that it contains a variety of different channel types. The most numerous voltage dependent channels present are sodium and calcium channels (so named since the two types of channels are selectively permeable to these ions). Therefore, initial measurements of gating currents from cardiac myocytes were aimed at separating the total gating current into the components arising from sodium and calcium channels. This has been successfully accomplished using of voltage dependence, kinetics, and differential drug sensitivity. In all guinea pig ventricular myocytes it has been found that charge movement attributable to calcium channel gating is larger than that attributable to sodium channel gating. Moreover, it has been observed that in some 50% of the cells studied in this preparation sodium gating current accounts for less than about 10% of the total charge movement. This is fortunate in that it allows calcium gating currents to frequently be studied with minimal contamination from sodium channel gating. Recent experiments have concentrated on calcium channel gating currents and have studied shifts in the voltage dependence of these currents associated with channel inactivation and drugs such as D-600. It is felt that these results will place important

constraints on the types of models which can account for observed channel behavior.

Dr. Levis also maintains a continuing interest in refining the patch voltage clamp technique, particularly in the reduction of noise. His efforts in this regard are internationally recognized and have in recent years more than doubled the resolution attainable in practical measurement situations. His research in this area includes patch clamp electronics and theoretical and practical investigations of the noise properties, various types of glass used in the fabrication of patch pipettes, and of materials used in interfacing the electronics with the pipette. These efforts will be of considerable significance to the study of single calcium channel currents in heart since these currents are very small (typically < 1 pA) and transitions between the closed and open state of the channel can occur on a microsecond time scale.

Computer-Based Education. The "smart tutor" project, a collaborative effort between Drs. Joel Michael and Allen Rovick and Dr. Martha Evens, Illinois Institute of Technology, has continued making progress towards its goal of a computer tutor to assist students learning about the baroreceptor reflex. A screen manager (the handler of all student inputs and all computer outputs), natural language understander (accepts "ill-formed" student language) and a natural language text generator have been implemented and verified. A student modeler (which determines what the student knows or doesn't know) and the instructional planner (which generates teaching goals for the tutorial interaction and plans the lessons) are under development. A prototype tutor able to interact with students should be available by 1992. This work is now being carried out on an Apple Macintosh IIfx computer.

Analysis of face-to-face and keyboard-to-keyboard tutoring sessions continues; the language and knowledge of both student and tutor is being cataloged and tutoring rules are being derived.

An experiment was carried out in which 40 first year medical students, used the program CIRCSIM under a variety of conditions. Comparisons of pre- and post-tests show that this teaching program, does improve the students' ability to make predictions about the baroreceptor reflex.

Membrane properties of neurons and conduction of action potentials during demyelination. Studies in the laboratory of Fred Quandt are directed at examining the ion channels in neurons and excitability during demyelination. Many studies have suggested that

the symptoms associated with Multiple Sclerosis are due to conduction block in central nervous system axons secondary to the loss of myelin. Computer simulations are utilized to understand the limitations in the conduction of action potentials in neurons which occur following demyelination. For example, the frequency response of demyelinated fibers is reduced, compared to normal fibers. One new result from recent investigations is that the internodal conduction delay which occurs at the demyelinated internode slows repolarization of the invading action potential, increasing the refractory period. This effect appears to underlie the reduction in frequency response.

It is possible to overcome conduction block due to demyelination in an experimental preparation using drugs which increase the duration of the action potential. The agents used to prolong the action potential and overcome conduction block include K channel blockers, such as 4-aminopyridine (4-AP) and tetraethylammonium. The mechanisms of action of block by these K channel blockers are being studied in order to optimize this approach. For example, 4-AP may interact with the open or closed states of the channel to produce a blocked state. Experiments in the laboratory employ patch clamp techniques to record single K channels from neuroblastoma cell membranes. Recent work has focused on the action 4-AP. Dr. Quandt's laboratory has found that AP increases the duration of the nonconducting time of the channel in a concentration dependent manner and can reduce the probability of a conducting K channel by 50 % without a reduction in the open time. These observations suggest that the channel is not required to be gated open for block to occur.

The demyelinated internode of an axon is essentially an area of high conductance which can "short circuit" the action potential. Drs. Quandt and Jody Hirsh have been examining the membrane components responsible for the resting conductance of the nerve membrane by patch clamping neuroblastoma cells. They have found the presence of a cation conductance which contributes to the membrane current, but not by generating current jumps due to the opening and closing of a channel. The conductance decreases as the membrane is hyperpolarized due to a voltage-dependent block by Ca. The conductance explains depolarization of the membrane in low Ca. Additionally it may be a significant determinant of the electrical responses of mammalian neurons since it was found to have a very high temperature dependency.

Excitation Contraction Coupling. The transduction of action potential to muscle contraction (Excitation-Contraction or EC coupling) is an example of fast communication between cell membrane events and metabolic state. As in many systems, the central messenger of this coupling is calcium, which in muscle is released from the Sarcoplasmic Reticulum (SR) to activate contractile proteins. The release channels of the SR are controlled by changes in potential at the plasma and T tubular membrane. The long term goal of Dr. Eduardo Ríos laboratory is to understand this control.

Over the last few years, and thanks in part to work in this lab, the identity of two key molecular players, the *voltage sensor* of the T membrane and the *release channel* of the SR, became known. The central problem of EC coupling is to understand the interaction between the "DHPr" molecule (the voltage sensor) and the "RYr" molecule (release channel).

To attack this problem Dr. Ríos' laboratory uses a reductionist approach, studying the complete system and its parts. The complete system is the skeletal muscle fiber, in which they measure various manifestations of EC coupling, including: intramembrane charge movement (a manifestation of the voltage sensor) and Ca release flux. Measurement of these phenomena (carried out in collaboration with Dr. Adom González) showed a new phenomenon of *backward* transmission in EC coupling (Calcium release feeds back positively on the voltage sensor, constituting a self reinforcing loop).

To study the parts of the system separately, two preparations have been developed in this laboratory. 1) Single channel recording of individual voltage sensor molecules separated from muscle and incorporated in artificial lipid bilayers and 2) measurement of Ca channel gating currents in heart myocytes. All these manifestations arise from the function of similar molecules. A comparison of the properties of the molecules in a complete system the muscle fiber and when they are separated, will identify consequences of their interaction.

Preparation 1 above has been developed in Dr. Ríos' laboratory by Dr. Jianjie Ma. They have established for the purpose of studying these proteins in bilayers, a long term collaboration with Dr. M. Marlene Hosey, Professor of Pharmacology, Northwestern University, in whose laboratory the various muscle fractions are separated and proteins are purified. As additional results of this collaboration, they have found that phosphorylation catalyzed by protein kinases has consequences for the function of these channel proteins and voltage sensors.

Preparation 2 (isolated heart myocytes for the measurement of Ca gating currents) has been

developed in collaboration with Drs. R. Levis and R. Shirokov. In addition to its interest for the study of EC coupling in cardiac and heart muscle, this preparation has obvious importance for the study of fundamental properties of calcium channels, essential to the function of heart muscle and the nervous system.

Nonlinear chaotic dynamics. Much of physiological science concerns itself with the detection and analysis of "true signals" from out of the background of "noise". The problem, however, is that 1) some signals often look like noise; or 2) other signals are heavily

contaminated by noise. Dr. Joseph Zbilut in collaboration with Dr. Charles Webber, Jr. of Loyola University Medical Center, have been studying techniques which help elucidate these problems.

Also, in collaboration with Dr. Frederic Eldridge of the Physiology, Department of the University of North Carolina, Chapel Hill, they have been studying how noise may be important in controlling normal breathing.

A related problem involved quantifying noise in the electrocardiographic signal. With Dr. Thomas Buckingham, we have been evaluating this process in the signal-averaged ECG.

Division of Psychology

Philosophy

The Division of Psychology offers a program of study leading to a doctor of philosophy degree in psychology with specialization in health psychology. The goal of the program is to integrate basic knowledge of human behavior across the life span with specialized understanding of psychological issues in health and illness.

Admission Requirements

In addition to the admission requirements established by The Graduate College, the division requires the results of the Graduate Record Examination (GRE) aptitude test and the advanced test in psychology. A personal interview may be requested. Completed applications should be submitted to The Graduate College by February 15.

Admission to the program is limited and competitive, with students admitted only once each year in the fall term. Students from varied backgrounds whose career commitment is to health psychology are encouraged to apply. Although a background in psychology and the biological sciences is desirable, there are no specific requirements for admission regarding undergraduate preparation. Students who have graduate training may apply and, if admitted, their class standing will be determined on an individual basis.

Applicants will be evaluated on the basis of their academic record, letters of recommendation, their personal statement of career goals and aspirations, and their GRE scores. It is the responsibility of the Graduate Committee to review all applications and recommend acceptable candidates. The authority for admission to the program rests with the entire faculty of the graduate Division of Psychology, The Graduate College Council, and with the dean.

Curriculum

The curriculum is designed to provide a foundation in the science of psychology while permitting students the flexibility to pursue individual interests in health psychology. Completion of a core program in the basic theory and methods of psychology, with a concentration in biological psychology and normative behavior

across the life span, is required. Depending upon their area of interest, students pursue advanced study and research leading to a thesis in a specialized area in health psychology. There is provision for elective courses throughout the graduate experience to permit diversity in individual programs and to provide the opportunity for involvement in research throughout graduate training. Study in the biological sciences and other cognate areas relevant to the student's program is encouraged.

Course requirements for all students include the following:

General Psychology Core

- PSY 501 Psychology of Learning
- PSY 521 Biological Bases of Behavior
- PSY 522 Psychophysiology
- PSY 531 Developmental Psychology I:
Infancy through Adolescence
- PSY 532 Developmental Psychology II:
Adulthood and Aging
- PSY 541 Theories in Social Psychology
- PSY 545 Health and Illness Behavior
- PSY 557 Human Neuropsychology

Statistics

- PSY 505 Biostatistics I
- PSY 506 Biostatistics II
- PSY 507 Biostatistics III

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

The doctoral degree program in psychology requires a minimum of 144 hours beyond the bachelor's degree, equivalent to four years of academic preparation. Students are expected to maintain full-time enrollment during the academic year. For those students who elect clinical training, one additional calendar year of clinical internship training is required.

Comprehensive Examination. A written examination designed to assess the student's knowledge of general theory and methods of psychology will be taken after the first two years of satisfactory work is completed.

Dissertation. Following successful completion of the comprehensive examination, the student will begin work on a dissertation, according to the following agenda.

- Selection of a dissertation committee in consultation with the major advisor.
- Development of an acceptable research dissertation proposal.
- Oral preliminary examination in reference to the rationale, methods, and goals of the dissertation proposal.
- Admission to candidacy for the doctoral degree, contingent upon approval of the proposal by the student's dissertation committee.
- Completion of dissertation research.
- Oral defense of the dissertation.

Research Activities

The Department of Psychology and Social Sciences is involved in a wide variety of both basic and applied research studies. Some of these are independent, and others are interdisciplinary, involving continuing collaboration with other scientists.

The neuropsychology group is carrying out a large program concerning the effects on behavior of various diseases of the central nervous system. Some of these studies are independent, but may be collaborative and involve members of the Departments of Neurological Sciences, Neurosurgery, Internal Medicine, and Psychiatry. These studies include: memory disorders and psychopathology in Huntington's disease; memory disorders, hallucinatory syndrome, and drug effects in Parkinson's disease; treatment effects in Tourette's syndrome.

Research on individuals with cancer has focused on specific cancer populations and how psychological issues interface with medical care. Research is also being conducted in the area of life stress as this pertains to adjustment factors for hospitalized elderly patients. Another study is concerned with development of a test to measure behavioral regression for hospitalized medical patients.

Evaluation of low back pain has been facilitated by development of several pain scales that rely on the language of pain for discrimination. It is now possible to identify patients with psychological disturbance among patients with varying degrees of organic

involvement using a small number of affective and sensory descriptors.

Studies of sleep disorders and the relation of these to psychological, physiological and social functioning are another departmental focus. Behavioral treatments, both alone and in combination with surgical and/or pharmacological approaches, are being tested for control of sleep apnea in the Sleep Disorder Service. A study using chronobiological principles to adjust nurses' shift schedules is also underway. A new study that compares the biological sleep markers and dream characteristics of males and females who are depressed to those of nondepressed controls will attempt to understand why women are more subject to depression than are men.

Social networks have emerged as a research focus on two projects. One is a study of reactions of families and social networks of patients to the situation of being a care giver to patients having neurological diseases (e.g., Alzheimer's disease, dystonia, Tourette's and Huntington's disease). Social networks are also the central concern in a study of adaptation to medical school by medical students. This is the first major attempt to quantify the changes that occur in the social networks of medical students throughout their four-year medical school experience.

New work has been undertaken in identifying dimensions of patient satisfaction with hospitalization. New strategies for data gathering have been devised which will permit researchers to isolate those particular areas of patient experiences that contribute most to satisfaction and dissatisfaction with inpatient care. Through a sophisticated data gathering system providing rapid feedback to the Medical Center, assessment of alterations of patient care protocols on satisfaction can be made.

In addition, two new research efforts have been developed in the area of health and social policy in collaboration with other departments in the Medical Center. The first is a study of the reduction of risk of cancer through dietary modification. This project has been developed in conjunction with the Department of Preventive Medicine. A second project links psychology and social sciences with health systems management in an effort to determine the impact of attitudinal variables on utilizations of HMO services and ultimately on the costs of care attributable to excessive use of services.

Pediatric psychologists are conducting a number of research projects within the Department of Pediatrics. The neuro-development sequelae of prematurity are being assessed in a number of ways. The study of high-risk infants includes measurements of spectral coherence (i.e., shared variability) of

cardiac and respiratory rhythms in conjunction with motor and radiological assessments. Follow-up assessments of autonomic function, auditory sensitivity, neuromotor, cognitive, language, and behavioral development are carried out through four years of age and repeatedly related to functional clusters of perinatal variables. Imbedded within this project are additional studies of autonomic correlates of apnea of prematurity, alternative measures of motor performance, early neuropsychological sequelae of neonatal brain hemorrhage or asphyxia and family stress factors related to quality of developmental outcome. Synthesis of the results should produce effective means of redefining risk status during infancy to reflect individual differences in extent of recovery from perinatal trauma and/or dysfunction.

Studies of attitudes toward weight and the stigma of obesity continue. Refinement and standardization of the "Weight Attitude Questionnaire" is continuing through the collaborative work of investigators at this institution and Weber State College.

Another area of investigation involves the development of measures that assess parent/child interaction to help predict probability of reabuse by parents. These potential interactional variables may have utility in making post-hospitalization placement decisions, especially for families with no history of prior abuse.

Patients admitted to the Pediatric Care Unit with a diagnosis of closed head injury are being evaluated in a battery of neuropsychological, intellectual, and academic measures. Results of

this ongoing evaluation will be employed to address two important questions: What is the natural recovery process of cognitive functions in children who have sustained a closed head injury? Can treatment administered shortly after the trauma predict the ultimate level of recovery of functions?

Patients admitted to the Adolescent/Young Adult Unit with a diagnosis of conversion disorder are being evaluated using a battery of psychological and medical measures. This sample will be compared to a matched group of patients with physiologically based symptoms. Findings will be used to construct a clinical scale for the diagnosis of conversion disorder.

At the Johnston R. Bowman Health Center for the Elderly, research has been ongoing in the area of geriatric health psychology. Of continuing interest is the study of the efficacy of various brief psychological interventions with hospitalized elderly. Another study identifies and alters psychosocial and behavioral factors that contribute to the maintenance of physical illness and the defeat of medical management. A new project started this year focuses on influencing and predicting treatment outcome of chronic illness and disability in elderly patients on the physical rehabilitation unit. Part of this project involves the development and psychometric refinement of measures of psychological functioning geared specifically for hospitalized elderly. Another aspect of this research explores the relation among stress, coping, social support, psychological symptomatology and chronic illness.

COURSE DESCRIPTIONS

Explanation of Course Descriptions

Discipline Abbreviations. Courses listed and described in this section have been approved by the several faculties of Rush University. Offerings for the 1991-92 academic year are listed in the *Timetable of Courses* published quarterly by the Office of the Registrar or the *Core Clerkship Handbook* and the *Elective Clerkship Handbook* published yearly by the Office of Clinical Curriculum of the medical college. The courses are listed alphabetically according to the discipline to which the course content is most closely related. These disciplines do not necessarily reflect a department in the University or in the Medical Center. A three-character abbreviation for the discipline precedes the course number for each course listed.

Course Numbers. A three-digit course number follows the course abbreviation. It indicates the level of offering for that course as shown below:

<u>Course Numbers</u>	<u>Level of Offering</u>
300-399	Undergraduate Third Level
400-449	Undergraduate Fourth Level
450-499	Dual Level--may be taken for undergraduate or graduate credit
500-599	Graduate Level
500-549	Master's Level (College of Nursing)
550-599	Doctor of Nursing Level (College of Nursing)
600	Post-Master's Level Residency
601-699	Doctoral Level

Course Content. A course title is followed by a brief description of course content and information pertaining to the course:

Course Prerequisites or Corequisites. Specific prerequisites are noted for some courses. Where no prerequisite is listed, it is assumed that students enrolling will have an adequate background on which to build. Students who have any questions about preparation should consult with the instructor of the course. If a corequisite is listed, that course must be taken either during the same term or prior to the course which has a corequisite.

Quarter in which course is given. FA(II), WI(ter), SP(ring), or SU(mmer) designates the quarter in which the course is offered each year.

Course credit. The number of quarter hours of credit for a course appears between parentheses. In many cases a series of three numbers is shown, e.g. (2-3-3). The first numbers refer to the hours per week of lecture or seminar; the second, to the number of hours in laboratory or clinical setting; the third, to quarter hours of credit. If any of these is variable, it is replaced with "v".

Clock hours (Rush Medical College). Clock hours appear between brackets. Since students in other colleges may cross-register for courses offered by Rush Medical College, the credit hour value of the course may also appear.

Clinical weeks (Rush Medical College). The number of weeks that students normally take each clinical course is indicated. These weeks also appear on the academic record.

Instructor. When known, the instructor's name is provided.

Independent Study Courses. Students may enroll in an independent study course in any discipline of the University under the direction of the appropriate faculty member with his/her written permission and the approval of the program director.

The course number 449 will be used for academic independent study for undergraduates and 599 for independent study for graduate students with the appropriate discipline prefix. Master's candidates in the College of Nursing use NUR 549.

ALTERNATIVE MEDICAL CURRICULUM

All alternative curriculum courses reflect the content of the regular medical curriculum for the first and second years. The format involves student-directed learning and group discussions. Only alternative curriculum students may take these courses.

ALT 451 Cellular/Molecular Biology. An integrated course with emphasis on the basic concepts and principles of biochemistry, immunology, and microbiology interwoven with a study of their clinical applications. FA (v) Morley, Siegel.

ALT 452 Anatomical Sciences. The structure and function of the human body are examined from the perspective of the anatomical sciences, interwoven with a study of the clinical applications of gross anatomy, microscopic anatomy and embryology. WI (v) Dinsmore.

ALT 453 Physiology and an Introduction to Pharmacology. An integrated course that emphasizes the processes and phenomena of organ systems, and an introduction to the pharmacology with a special emphasis on the autonomic nervous system. interwoven with a study of their clinical applications. SP (v) Michael, Nora, Prancan.

ALT 464, 465, 466 Behavioral Science I, II, III. An overview of the biological, psychological and sociocultural explanations of human behavior as they relate to health care. FA WI SP (v) Zitter.

ALT 471 Epidemiology. A general survey of biostatistics and epidemiology. FA (v) Olesky.

ALT 472, 473 Preventive Medicine I, II. Preventive medicine dealing with socioeconomic factors in health care, preventive practice and environmental and occupational health. WI SP (v) Staff.

ALT 511, 512, 513, 514 Introduction to Patient I, II, III, IV. Clinical concepts and skills. Students learn to elicit a medical history and do a general screening examination. Techniques are practiced on other students, simulated patients and patients. FA WI SP FA (v) Rothschild, Nelson, Schwer, Hedberg, Kroger, Brown, Staff.

ALT 515, 516 Introduction to Patient V, VI. Continuation of ALT 514. WI SP (v) Charhogsursky, Staff.

ALT 531- Neurosciences. The neurosciences, including neuroanatomy, neurophysiology, neuro-pathology, and neuropharmacology. FA (v) Busch, Carvey.

ALT 532 Psychopathology. In depth study of psychopathology. WI (v) Bloom.

ALT 540 General Pathology. The general concepts of pathology are studied, with an introduction to degeneration, inflammation, immune response, neoplasia and metabolic and toxic pathological processes. Seminars are accompanied by laboratory work in the microscopic anatomy of pathological changes. FA (v) Loew.

ALT 541 Pathology, Pathophysiology, Pharmacology Block I. An integrated organ systems course with an emphasis on the concepts and principles of pathology, pathophysiology and pharmacology. Studies will include cardiovascular, locomotor, pulmonary and renal systems, immunology, infectious diseases and oncology. WI (v) Hedberg, Nora, Loew.

ALT 542 Pathology, Pathophysiology, Pharmacology Block II. A continuation of ALT 541. Studies will include: hematology, endocrinology, reproductive system, genetics, gastrointestinal system and hepatology. In addition, there will be clinical trials and integration across all organ systems. SP (v) Hedberg, Nora, Loew.

ANATOMY

ANA 451 Histology. The microscopic anatomy of cells, tissues, and organ systems of the human body is studied through laboratories, lectures, and self-instructional material. Fine structural specializations relating to tissue function are emphasized along with the histological architecture that characterizes each. FA (3-4-5) [82 hours] Khodadad.

ANA 455 Neuroanatomy. The morphological organization of the central nervous system is explored through lectures, preceptorials, laboratory dissection, and microscopic examination of the human brain and spinal cord. Functional and clinical correlations are emphasized. (5-4-6) Kerns.

ANA 462 Introduction to Neurobiology. The development, morphology, and functional significance of the human nervous system are presented in lecture and by demonstrations. Fixed human brain preparations and series of neurological slides are used as visual aid materials. Prerequisite: courses in human biology or anatomy and physiology or comparative anatomy. Permission of instructor. FA (2-2-3) Kerns.

ANA 465 Gross Anatomy. The structure and function of the human body are examined topographically through laboratory dissection, lectures, and preceptorials. Laboratory examination is conducted regionally and clinical correlations are emphasized. FA (v-v-5)

ANA 471 Human Anatomy I. The structure and function of the human body are examined topographically through laboratory dissection, lectures, and preceptorials. Laboratory dissection is conducted regionally, encompassing the thorax, abdomen, pelvis, perineum, head and neck, back, and extremities. Radiological anatomy, living anatomy, and clinical correlations are emphasized.

Embryology. The fundamentals of human development are examined from gametogenesis and fertilization through the formation and differentiation of the germ layers, organogenesis, and morphogenesis of the fetus. Congenital malformations and experimental embryology are introduced where feasible. FA (5-6-7) [100 hours] Schmidt.

ANA 472 Human Anatomy II. Continuation of ANA 471. Embryology is introduced where pertinent. WI (5-6-7) [90 hours] Schmidt.

ANA 511 Comparative Cytology of Tissues. Cellular structure will be studied in relation to the organization of selected tissues. Emphasis includes application of special techniques, and the evolution of contemporary views on structure and function. Prerequisite: ANA 451. SP (3-0-3) Hughes.

ANA 501 Supplement to Histology. Discussion groups for graduate students based on ANA 451. FA (v-v-v)

ANA 502 Supplement to Neuroanatomy. Discussion groups for graduate students based on ANA 455. (v-v-v)

ANA 503 Supplement to Human Anatomy I. Discussion groups for graduate students based on ANA 471. FA (v-v-v)

ANA 504 Supplement to Human Anatomy II. Discussion groups for graduate students based on ANA 472. WI (v-v-v)

ANA 505 Supplement to Embryology. This supplemental course for graduate students focuses on, but is not limited to, human embryonic and fetal development. Selected readings will be assigned in coordination with student interests and the embryology sections of ANA 471, 472. FA WI (v-v-v)

ANA 513 Anatomy of the Eye. The histology and embryology of the eye will be reviewed in detail as the basis for discussion of selected topics. These will include: congenital malformations, physiology, and pharmacology of selected ocular systems; vessels and nerves of the orbit; and regional structure and function. SP SU (4-0-4) Hughes.

ANA 521 Experimental Morphogenesis. Classical and contemporary studies of embryonic development and regeneration will be analyzed for common themes. With this foundation, students will be challenged to design experiments by which insight in differences and similarities between the paradigms may be further elucidated. Where feasible, the student may be invited to elaborate the experiment as an independent laboratory research project. Prerequisite: ANA. 451. (3-v-4) Dinsmore, Schmidt.

ANA 522 Tissue Repair Mechanisms. The ability of the several tissues of the vertebrate body to repair themselves is quite variable. The repair potential and mechanisms of each tissue will be considered separately and in detail through discussion of current journal articles. A final research paper on a selected area in this field is required. Prerequisite: ANA. 451. (3-0-3) Dinsmore, Schmidt.

ANA 531 Anatomy of the Synovial Joint. The gross and microscopic anatomy of the synovial joint will be examined in detail as a basis for discussion of selected topics. Topics will be arranged to meet individual student needs and may include: physiology and biochemistry of articular cartilage, subchondral bone, synovial membrane

and other associated structures. Permission of instructor. (v-v-v) Williams.

ANA 541 Topics in Muscle Biology. A seminar format will be employed for critical examination of papers relating to the biology of muscle in one of two areas: (1) current topics in excitation-contraction coupling, contractility, and energetics; or (2) review of the neuromuscular junction followed by examination of experimental systems dealing with the trophic maintenance and the development of muscle fiber types. Contributions of nerve injury to the pathogenesis of muscle disease will be considered. Permission of instructor. FA (3-0-3) Hughes, Kerns.

ANA 560 Topics in Neurobiology. A seminar format will be utilized to review selected topics and original papers within one of the following units of study: neurogenesis, plasticity, synaptic organization of neural systems, or current methods in neuroanatomy research. SP (4-0-4) Durica, Hughes, Jacob, Kerns.

ANA 581 Approaches and Methods in Morphologic Research. Study of how sources of information, methods of investigation, and technical procedures are applied to anatomic research. Demonstrations of techniques and student laboratory participation are included. SU (2-4-4) Staff.

ANA 591 Preceptorials in Anatomy. Laboratory experience is provided in conjunction with related preceptorials on selected topics in the anatomical sciences. Prerequisites: ANA 451, 472. SU (2-4-4) Staff.

ANA 592 Concepts in Morphology. Seminars and tutorials offered by faculty and guests on topics of special interest in the morphological sciences. FA WI SP SU (v-v-v)

ANA 595 Journal Club. (v-v-v)

ANA 599 Independent Study. Selected topics in anatomical science. (v)

ANA 600 Thesis supervision. Supervision while student is writing the master's thesis following all required course work. Repeated until thesis is accepted for publishing. Student pays enrollment fee. No credit.

ANA 601 Surgical Anatomy. A laboratory program of regional dissections and demonstrations. The applied, clinical, and surgical aspects of anatomical regions are emphasized. Prerequisite: ANA 471-2 or equivalent. FA WI SP SU (0-v-v) Doolas, Schmidt.

ANA 602 Advanced Anatomy. A laboratory program of special dissections and demonstrations on selected regions of the body: thorax, abdomen, pelvis and perineum, upper and lower extremities, and the CNS (spinal cord and brain). Prerequisites: ANA 451, 472, or equivalent. FA WI SP SU (0-v-v) Schmidt.

ANA 699 Research. Research devoted to the preparation of a thesis in partial fulfillment of the requirements of the degree program. FA WI SP SU (0-v-v) Staff.

BEHAVIORAL SCIENCES

BHV 451 Fundamentals of Behavior. During the first five weeks, a series of lectures provide the basic conceptual framework and terminology used to describe and explain human behavior in three areas: biological, psychological, and sociocultural. Primary emphasis throughout is on the ways such types of influences affect the lives of patients. A matrix of special topic seminars (Behavioral Science 473) is presented during the second five weeks from which students select two. WI [21 hours] Cella.

BHV 453 Behavior in the Life Cycle. Introduction to a clinically based study of the individual life cycle. Emphasis is on the provision of a normative account of development from physical, psychosocial, and sociological perspectives. During the second five weeks of the quarter students choose one special topic seminar (Behavioral Science 473). SP [26 hours] Cella.

BHV 473 Behavioral Science Minicourses. A matrix of special topic seminars which allows a concentrated introduction to a significant area of behavioral study. The following descriptions, presented in recent years, are typical of those presented each year. (1 or 2) [10 or 20 hours]

Behavioral Change Strategies in Medical Practice. The medical profession is becoming increasingly aware of the role that behavioral techniques play in both increasing the efficacy of medical procedures and ameliorating a wide array of physical complaints. The application of the behavioral model of assessment and intervention to medical problems, including multiple strategies to increase compliance with medical regimens; techniques such as relaxation therapy, systematic desensitization, biofeedback, cognitive-behavior modification and stress management in a medical setting.

Family Dynamics Across Life Cycle. An introduction to the dynamics of the family, especially as they impact the delivery of healthcare. Course will consider psychoanalytic and structural theories of family systems, process of genogram construction, concepts of family lifecycle, boundaries, circular causality, homeostasis, under/over functioning, and impact of physician's family of origin on professional functioning.

Family Dynamics and Assessment. The family systems model is used to acquaint the student with the family as a object of study, assessment and treatment. The family's life cycle, its interrelationships, dynamics and the effect each has on the well being of each family member and how they respond to medical treatment will be discussed. Topics such as physical and sexual abuse in its family context, substance abuse as a family systems issues, psychosomatic illness within the family are among the topics covered.

Introduction to Death and Dying. This course will examine significant psychosocial, physical and ethical questions in the care of the dying and their families. Issues will include: caregivers' personal death awareness and its effects on their caregiving; question of "stages;" effective

counseling with dying persons and their families; cross-cultural concerns; advanced directives; and suicide. Video and experiential exercises will be employed.

Introduction to Health Care Ethics. This course will address foundational issues in health care ethics, including confidentiality, informed consent, autonomy and heteronomy in the caregiver-patient relationship, advance directives, and one highly controversial topic, such as abortion or the place of the physician in rationing care. The readings will be journal articles or brief excerpts from books; Rush clinicians will present at least one case each week.

Law and Medicine. The goal of this course is to familiarize the student with some of the legal issues likely to be faced in the practice of medicine. The topics include: introduction to law, malpractice, informed consent, research, mandatory reporting acts, legal issues raised by mental illness, right to refuse treatment, reproductive issues, legal aspects of DNR orders, living wills, and blood transfusion refusals. At the end of the course, the student should have an understanding of how the law interfaces with and regulates medicine in these areas.

Neurological Development & Behavior. As the brain and central nervous system develop, so do uniquely human abilities that can be impaired, distorted, or destroyed by brain injury or disease. This course will describe the development of the brain as it shapes perception, understanding, communication, reason, and memory. From this perspective, types and symptoms of brain damage will be described. Examples from forensic psychological and neuropsychiatric cases will be provided, to illustrate the ways in which pathology can affect human understanding at different developmental levels.

Obesity, Eating Disorders, and Weight Management. This course will cover the epidemiology, genetics, physiological, social, and psychological aspects of obesity. Students will learn the current dietary, behavioral, and exercise approaches to weight reduction as well as the new natural eating alternative. Health risks associated with obesity, excessive thinness, and restrictive dieting are presented. The course has now been expanded to include material on eating disorders, anorexia and bulimia, and the psychodevelopmental model of understanding the psychopathology of an eating disorder. Current approaches to treating eating disorders are discussed including the Adolescent and Young Adult Eating Disorders Program at RPSLMC.

Pain. Pain is a symptom that is commonly presented and its alleviation is often a primary goal of treatment. At the same time, pain is often not obviously related to physical disease processes and may be a complication of treatment. This course will discuss concepts of pain, factors affecting its report by patients, and its role in various disorders.

Parenting. Viewing parenting as a state in the life cycle, this course will focus on topics such as: emotional preparation for parenthood, the normal stresses and emotional reactions common to new parents, changing parental roles as children move from infancy through the developmental stages, and practical issues of parenting

related to child management. Within this context, attention will also be given to unique situations encountered by single parents, stepparents, and grandparents.

Physician as Writer. Physician As Writer will vigorously explore selected fiction, chronicles, and autobiography by distinguished 20th century physician-writers. Focus will be on the writers' unique response to questions of medical ethics, social issues, and doctor-patient relationships, as well as on the physician as philosopher and humorist. Participants are invited to bring an open and inquiring mind to bear on problems of medicine as expressed in some of the world's outstanding literature written by physicians, including William Carlos Williams (Amer. Gen. Practitioner), Mikhail Bulgakov (Russian Rural Phys. & Surg.), Anton Chekhov (Russian Gen. Practitioner), Oliver Gogarty (Irish ENT), Carlo Levi (Italian Gen. Practitioner), and Richard Selzer (Amer. Gen. Surg.).

Preventive Cardiology. This course will focus on psychological and behavioral contributions to the prevention and treatment of cardiovascular diseases. Specific topics covered will include cigarette smoking, diet, exercise, stress management and patient compliance. The course will emphasize interdisciplinary approaches to the understanding and management of cardiovascular diseases.

Psychophysiology of Normal and Abnormal Infants. The close relationship between processes of biological and behavioral development during the first two years is explored in depth. The developing response capabilities and behavioral milestones of normal infants are used to define aberrant psychophysiological processes in high-risk and brain-damaged infants. Effects of premature birth and perinatal anoxia and hypoxia are emphasized in the context of the special problems in parenting sick or behaviorally abnormal infants. The range of deficiencies of high-risk or abnormal infants are contrasted with the behavioral patterns of mentally retarded and learning disabled children.

Resuscitation & Doctor/Patient Communication. Medical professionals and the lay public agree that patients should be included in the decision not to resuscitate. Nevertheless, in reality the discussion of resuscitation rarely occurs between doctors and patients until very late, if at all, in the course of one's illness, often after a patient is disoriented or comatose. This course will examine the complexity of this issue in an attempt to understand the current discrepancy between attitudes and behavior about resuscitation. An emphasis will be upon doctor-patient communication and how it can be improved to encourage appropriate discussion about resuscitation and other medical decisions that require input from the patient.

Sleep and Dream Disorders. A general introduction to the physiology and psychology of sleep including both normal sleep and dream patterns and the deviations that occur with various medical and psychiatric problems. Also covered are the diagnosis and treatment of the insomnias, hypersomnias and abnormal behaviors associated with sleep.

Social Epidemiology. This five-week course covers in depth some of the major issues in social epidemiology

through history. Examining key social variables such as culture, class, and the population pyramid, it looks at the effect of social structure on patterns of disease. Particular attention is paid to events such as the Black Plague, smallpox in Aztec Mexico, tuberculosis in industrial societies, and modern epidemics such as legionnaire's disease, AIDS, cardiovascular disease and cancer.

Suicide Among Physicians. This mini-course will critically examine the literature on suicide in general and physician suicide in particular, including recently published articles using data collected at Rush. We will address questions regarding the alleged high incidence of suicide among physicians as well as purported differences across specialty groups. In addition, we will look at data collected in a project sponsored jointly by the American Medical Association and the American Psychiatric Association.

The Human Side of AIDS. This course is designed to integrate a technical understanding with a personal understanding of those most affected by this illness...persons living with AIDS (PLWAs), their families, loved ones and caregivers. Our object is to offer an expanded awareness of the physician's role in treating people from different backgrounds, cultures and sexual preferences.

The Medical - Social Interface of Chemical Dependence. This course is designed to make you more knowledgeable of the pharmacology of various addicting chemicals, their physiological effects on the human body, and the social ramifications of their abuse on adolescents, adult, and communities through lectures and selected readings. Drug users' jargon will be taught, awareness of advertisement will be heightened, and clinical skills in diagnosing and treating chemically dependent persons will be sharpened.

Women in the Health Care System. The structures and world view of the West lead to gender differences regarding what constitutes health and healing. Upon completion of the course, students will be able to identify ways in which culture's images of women shape women's health related behavior. Areas to be addressed include: 1) the function of language in physician-patient relationships; 2) the perception of pain and illness in women; 3) body-image and self-esteem as dimensions of women's health; 4) women's spirituality as a resource for healing; 5) battered women and the health care system. The course will be taught using a feminist methodology in which experience is entry into theory.

BHV 520 Growth and Development in Children and Adolescents. An overview is presented of models and theories of development during childhood and adolescence. Biophysical, cognitive, emotional, and moral developmental theories are examined. Current research in the developmental and nursing literature is criticized for relevance to health promotion of children and adolescents. SU (3-0-3)

BHV 521 Adult Development. A critical examination of classic and contemporary theories of adult development is presented. SU (3-0-3)

BHV 522 Family Development Throughout the Lifespan. The development and evolution of families throughout the life cycle is presented. Research methods used to study family process are discussed. SP (3-0-3)

BHV 524 Human Sexuality Throughout the Lifespan. The development of human sexuality throughout the lifespan is explored. The application of assessment and intervention models is presented. SU (3-0-3)

BHV 525 Crises Theory and Intervention. Theoretical models and research related to crisis intervention in health care are discussed. WI SU (2-0-2)

BHV 526 Dynamics of Small Groups. Focus is on current theory and research on small group dynamics as a basis for interventions in groups with clinical, educational, or managerial tasks. FA (3-0-3)

BHV 528 Major Psychopathological Disorders: Theory, Treatment and Research. Major forms of mental illness and the management of behaviors related to mental illness is studied. SP (3-0-3)

BHV 529 Coping, Stress, and Adaptation to Illness and Disability. Major theories and concepts that explain how people learn to cope with stress, illness, and/or disability are examined. SU (3-0-3)

BHV 531 A.I.D.S. and the Social Sciences. An examination of the current research related to the cultural, developmental, and epidemiological aspects of HIV infection. Issues regarding education, prevention, and behavioral change to reduce the risk of HIV infection in various populations is addressed. SP 1993 (2-0-2)

BHV 533 Foundation of Mental Health in Early Childhood. Focus is on assessment of normal and high risk parent infant relationships and interventions with families whose infants are at risk for attachment disorders. FA (2-0-2)

BHV 541 Inpatient Psychiatry and the Search for Theory Based Practice. Emphasizes the theories and research supporting the practice of inpatient psychiatry. Milieu theory is examined along with its usefulness in directing treatment. Future trends in inpatient psychiatry are formulated in light of social policy and theory development. SU (2 or 3)

BHV 543 Observation and Communication. Introduction to the interview technique and process--the interview as a tool that facilitates the doctor-patient relationship and produces reliable and valid medical information. Interview theory, determinants of patient behavior and practice of interview skills are included. Seminars use videotapes. Prerequisite: BHV 451. WI [20 hours] Leavitt.

BHV 553 The Older Adult. Changing demographics of an aging population and major issues confronting aging persons are discussed. The impact of an aging society on social and health policy is explored. WI (3-0-3)

BIOCHEMISTRY

BCH 411, 412 Clinical Biochemistry I, II. Courses on the analytical and biochemical basis of methods used for chemical analysis of body fluids as related to diagnosis and treatment of disease. Topics discussed include blood sugar, carbohydrate tolerance tests, renal function tests, plasma electrolytes, blood gases, proteins, enzymes, liver function tests, cholesterol, and lipids. Critical evaluation of methods is emphasized. (4-0-4) (4-0-4)

BCH 413 Clinical Chemistry III. These tests and topics are covered: chemical hematology, special proteins, vitamins, biogenic amines, elementary toxicology, thyroid function tests, and steroid methods. Principles underlying automated and computer application methods will be discussed. Prerequisites: Biochemistry 411, 412. (3-0-3)

BCH 471 Medical Biochemistry I. Biochemistry of biologically important compounds and molecular biology. FA (6) [64] Bezkorovainy.

BCH 472 Medical Biochemistry II. Metabolism and nutrition. WI (6) [52] Bezkorovainy.

BCH 475 Biochemistry Review. A review of content covered in Medical Biochemistry. Offered only in summer quarter. SU (4) Bezkorovainy.

BCH 505 Advanced Biochemistry. Continuation of BCH 471 and 472, for graduate students only. SP (6) Homandberg.

BCH 511 Clinical Biochemistry. Open only to students whose career goal is clinical biochemistry. SP (4) Staff.

BCH 581 Biochemical Research Techniques. (4) Thonar.

BCH 582 Biochemical Methodology. Continuation of BCH 581. (4) Thonar.

BCH 585 Extramural Research. An 8-10 week (usually spring quarter) experience at an industrial research laboratory in Europe or the U.S. The student will focus on major and minor research areas. Assigned reading, a final examination and a written report are required. SP (5)

BCH 595 Journal Club. Discussion of current journal articles. (2) Hayashi.

BCH 597 Seminar. FA WI SP (1) Aydelotte.

BCH 599 Independent Study. (v)

BCH 624 Connective Tissue Biochemistry. FA (3) Schmidt.

BCH 631 Supramolecular Biochemistry. WI (3) C. Knudson.

BCH 641 Carbohydrate and Lipid Metabolism. (3) Hayashi.

BCH 690 Minicourses. (1)

BCH 698 Introduction to Research. FA WI (1) C. Knudson.

BCH 699 Research in Biochemistry. (v)

CELL BIOLOGY

CEL 502 Molecular Cell Biology. An examination of the molecular basis of the structure and function of eukaryotic cells. SP (4-0-4) R. Zimmerman.

CEL 522 Electron Microscopy Laboratory. Practical techniques of electron microscopy are addressed. Students dissect, fix, and imbed tissue and learn the use of the electron microscope. Students are especially encouraged to consult with faculty on the incorporation of their particular research system into the course exercises. The goal of the course is the preparation of electron micrographs of research quality. Extensive time for practical use of the equipment will be available. (0-8-4) R. Zimmerman.

CEL 523 Advanced Electron Microscopy Laboratory. This course provides experience with more sophisticated ultrastructural techniques, such as immunocytochemistry and phot-oxidation of fluorescent markers. Familiarity with basic electron microscopy techniques is required. Prerequisite: CEL 522 or equivalent and permission of instructor. (0-8-4) R. Zimmerman.

CEL 531 Nonradioactive Techniques in Molecular Biology. Planned as a series of laboratory exercises that can be approached with different schedules, the two objectives of this course are: to provide an introduction to basic techniques of molecular biology to students who might not otherwise have access to laboratory training, and to provide training in non-radioactive alternative labelling techniques that have safety and cost advantages over more traditional approaches. (0-8-4) Zimmerman.

CEL 571 Cell and Molecular Biology Techniques. This multidisciplinary course is open to students from all divisions. Practical methods used in modern research laboratories are demonstrated. Instructors active in these techniques use their own research facilities. Topics include tissue culture, light and electron microscopy, immunofluorescence, monoclonal antibody production, gel electrophoresis, cell fractionation, recombinant DNA technology, etc. Laboratories for inclusion depend on student interest and availability of faculty. Prerequisite: CEL 501 or permission of instructor. Alt. SP (1-3-2) Staff.

CEL 599 Independent Study. (v-v-v)

CEL 612 Electron Microscopy Laboratory. Practical techniques of electron microscopy are addressed. Students dissect, fix and imbed tissue and learn the use of the electron microscope. The goal of the course is the preparation of electron micrographs of research quality. Extensive time for practical use of the equipment will be available. [2 weeks] R. Zimmerman.

CLINICAL CONCEPTS AND SKILLS

CCS 501, 502 Clinical Concepts and Skills I, II. A comprehensive introduction to clinical medicine utilizing the resources of the Medical Center and the Rush network hospitals. Studies are primarily tutorial, but texts, audiovisual, and mechanical aids are available for self-study. Initially, students work with instructors and peers, learning to elicit a history and do a general screening examination. This is followed by extensive experience working with patients under the supervision of practicing physicians, with emphasis on eliciting historical information and gaining experience in physical examination techniques. Demonstration of pathological abnormalities and clinical pathological correlations are emphasized. Taught over three terms. [123 hours] McLaughlin, Douglas.

CCS 611 Computer Literacy. This medical computing elective includes an overview of computer system components, functions, and environments; practice in microcomputer applications such as word processing, communication, information retrieval and data base management; computer and software selection; medical computing in the patient care system, office practice, clinical decisions, patient monitoring, and medical research. Experience will include lecture/discussion, hands-on experience, site visits, and projects. Prerequisites: MED 601, SUR 601. [4 weeks, offered in April and September] Moore.

DERMATOLOGY

DRM 616 Dermatology. Dermatological problems are studied under the direct supervision of the departmental staff; diseases are considered from the standpoint of etiology, pathogenesis, diagnosis, course, and treatment. Skin biopsy applications and techniques as well as histopathologic interpretation are emphasized. Skin therapeutics are taught, stressing biochemical and physiological considerations. Prerequisite: fourth year status. FA WI SP SU [4 weeks] Pearson.

FAMILY PRACTICE

FAM 601 Core Clerkship in Family Practice. An intense ambulatory experience in family practice. Students see patients initially and formulate their assessments and plans under supervision of senior residents and attendings. Participation in comprehensive, longitudinal care is stressed. The common problems and responsibilities of a primary care physician are observed and taught. A lecture series and syllabus supplement the clinical experience. Two skills laboratories cover casting, suturing, and proctosigmoidoscopy. Diagnosis and treatment of alcoholism are also emphasized. Prerequisite: MED 503. FA WI SP SU [4 weeks] Vanderberg-Dent.

FAM 610 Family Practice Subinternship. An intensive primary care experience at either Christ or MacNeal Hospitals. The subintern will function in a capacity similar to an intern, with supervision by a senior resident and faculty physician. Prerequisite: FAM 601, MED 601, SUR 601. FA WI SP SU [4 weeks] Schwer.

FAM 621 Emergency Medicine-Christ Hospital. Students encounter a broad range of emergency problems in all areas of this large emergency service. The student will evaluate and manage patients under the direction of emergency medicine faculty and residents. Prerequisites: All core clerkships. FA WI SP SU [4 weeks] Feldman.

FAM 624 Inpatient Family Practice - West Suburban Hospital. Students work with attending family physicians who admit their patients to the West Suburban Hospital Fam. Prac. teaching service, as well as with the second-year resident assigned to the service. Students will be responsible for comprehensive management of patients under guidance of the resident and attendings. Prerequisites: FAM 601, MED 601. FA WI SP SU [4 weeks] Krohm.

FAM 625 Alcoholism Chemical Dependency Unit. Students develop skills in intervening and managing alcoholic and other chemically dependent patients. A longitudinal interdisciplinary experience is stressed, emphasizing detoxification, rehabilitation, and outpatient treatment. Prerequisite: FAM 601. FA WI SP SU [2-4 weeks] Dixie-Bell.

FAM 631 Stress and Illness in an Ambulatory Setting. This is a preceptorship with an experienced clinical psychologist at the Christ Hospital Family Practice Center, seeing patients referred by the residents and faculty of the Center. Clinical problems encountered include stress management, depression, eating disorders, and family counseling. FA WI SP SU [2 weeks] Zitter.

FAM 641 Urban Primary Care. A preceptorship with a family physician in an urban solo practice, emphasizing preventive health care and the impact of environmental factors upon health care delivery. Prerequisite: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Rothschild.

FAM 642 Community Medicine - Stickney Clinic. A broad-based ambulatory care preceptorship in a community-funded health clinic, serving the primary care needs of southwest suburban Stickney Township. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] Largosa.

FAM 643 ANCHOR HMO Primary Care Preceptorship. A preceptorship with a family physician in practice in a prepaid group medical practice (health maintenance organization). Emphasis will be upon health maintenance and upon understanding unique aspects of voluntary prepaid health care. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] Vanderberg-Dent.

FAM 644 Preceptorship in Holistic Health Care Center. The student will work with a health care team comprised of a family physician, nurse, and pastoral counselor. There will be participation in the health care of patients, encompassing medical, psychological, and spiritual issues including particular emphasis upon wellness promotion and comprehensive health planning. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] Humowiecki.

FAM 645 Suburban Private Practice - Oak Lawn. A preceptorship with an experienced family physician, both at his office in southwest Chicago and at Christ Hospital. The student will work in all areas of this busy physician's practice. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] Daum, O'Neill, Shobris.

FAM 651 Rural Primary Care - Streator. A preceptorship with an experienced family physician in Streator, Illinois, a town of 15,000 persons 90 miles southwest of Chicago. Prerequisites: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Gottemoller.

FAM 652 Rural Primary Care - Galesburg. A preceptorship with an experienced family physician in the small town of Galesburg, Illinois. Emphasis will be upon the practice of primary care in a rural setting, including use of both local and remote consultative services and community involvement of the physician. Prerequisites: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Currie.

FAM 671 Sports Medicine. An opportunity for in depth exposure to the preparticipation examination and care of the athlete. Students will work well fortified in the disciplines of family practice and orthopedics. Prerequisites: FAM 601, prior orthopedics experience preferred. FA WI SP SU [4 weeks] Davison.

HEALTH CARE EDUCATION

HCE 454 Development of Instructional Media. An overview of communication theory and its relationship to the communication process is used by students to design an instructional media program for a specific target audience. (2-0-2) Block.

HCE 522 Production of a Media Presentation. Under the guidance of biomedical communications staff, the student will coordinate and perform all activities relating to the production of a media presentation. The student is expected to use the finished product to provide information or instruction for a specific target audience. (2) Block.

HCE 531 Curriculum Design and Development. Curriculum design, organization, development, and trends will be the content of this course. FA SU (2-0-2)

HCE 533 Introduction to Instructional Design in the Health Sciences. The student will develop a basic understanding of the learning process by preparing a teaching unit in a content area of choice for a specified group of learners; by relating selected principles of learning to adults; and by evaluating teaching effectiveness. (3-0-3)

HCE 535 Education Program Development and Design. Andrological principles are applied to the process of designing and developing educational programs. Transferrable concepts which may be applied to continuing and/or academic programs are considered. (3-0-3)

HCE 581 Introduction to Research. The student develops skill in critically analyzing research studies,

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formulating research problems, designing research methods, using descriptive and inferential statistics to interpret data, analyzing data using parametric and nonparametric statistical models, and developing beginning competencies in the use of computers in research. (3-3-4)

HEALTH AND SOCIETY

H&S 461 Culture, Race, Poverty, and Health Care. Seminar and discussion on the influence of race, values, stereotypes, and poverty on health care delivery. (2-0-2)

HEALTH SYSTEMS MANAGEMENT

NOTE: Faculty from several programs at Rush offer HSM courses. Some HSM courses are limited or directed to students in specific programs. Additional information regarding enrollment restrictions is available in the quarterly *Timetable of Courses*.

HSM 401 Health Care Management. Organizational design and managerial processes of planning, organizing, directing and controlling, as well as the dynamics of managerial jobs are studied. Emphasis is on management strategies and techniques in the area of health care delivery. (3-0-3)

HSM 502 Health Care Organization I. This course is intended to provide students with a learning structure that enables them to become reasonably well versed in the factors, forces and dynamics of both the macro and micro environments in which various health care institutions operate. The interrelationships among various trends and forces likely to shape the roles and responsibilities of health care institutions in future years will be stressed. (4-0-4) Knepper.

HSM 503 Health Care Organization II. This course designed to provide students with a comprehensive working knowledge of the institutional perspective of health services management and dynamics of the health financing, policy and system performance arenas in which various health care institutions operate. Students will become familiar with key provider groups, the organization of financing, health information sources, health policy and regulation, quality assessment/assurance and system performance issues. (1-0-1) Sochacki.

HSM 506 Medical Sociology. An examination of the sociological, psychological, and behavioral dynamics of practitioners and groups within the health care delivery system. (3-0-3) Counte, Bliss.

HSM 507 Epidemiology. An understanding of the principles and methodologies of epidemiology, research design, and program evaluation emphasizing application to the planning and management of health care services. (4-0-4)

HSM 515 Human Resources Management I. An understanding of the human relations skills required of the health systems manager in an environment filled with both federal and state legal constraints. Skills acquired include motivating employees, appraising performance, dealing with

disciplinary problems, and employee counseling. (4-0-4) Hill.

HSM 516 Human Resources Management II. Examination of the labor-management relationship including the employment and labor laws impacting on both the union and nonunion work force. Provides an understanding of the unions prevalent in health care, strategies in confronting an organizing campaign, the processes of collective bargaining, and effective contract administration. SP SU (3-0-3) Hill, Perret.

HSM 522 Multi-Institutional Arrangements. An analysis of goals and organizational structures of multihospital systems and an understanding of causes for this trend, barriers to development, advantages/disadvantages and future trends. (3-0-3) Miller, Bass.

HSM 531 Finance I. Understanding the concepts and principles of accounting and finances and their application in health systems management. (4-0-4) Gasbarra.

HSM 532 Finance II. Provides an understanding and knowledge of health care services payment policies including sources of payment, (e.g., Medicare, Medicaid, Blue Cross) emerging payment arrangements, e.g., DRGs, PPOs, HMOs and the application of budgeting principles to health care institutions. (3-0-3) Jendro.

HSM 533 Health Economics. Application of economic tools and theories to the delivery of health care services. (4-0-4) Glandon.

HSM 534 Applied Economics I: Economics of Technology. This course will present the basic theory of technology evaluation as applied to the health care system. It will present and summarize the techniques developed in prior courses and analyze applications to medical and managerial technologies in health care. (3-0-3) Glandon.

HSM 535 Applied Economics II: Regulation and Public Policy. The current theories and empirical tests of the effects of regulation in the health care system will be presented and analyzed. Applications will focus on the influence of regulation on health services management with special emphasis on future regulatory actions and their impacts. (3-0-3) Kaatz.

HSM 536 Corporate Finance. Provides the financial tools and ability to understand the principle issues of corporate finance and financial management. This course shifts the student's focus from a micro to macro or corporate view of financial management. The overall objectives of the course are to understand the roles, functions and responsibilities of financial officers in managing a health care institution; be able to identify and analyze corporate finance problems and issues in the management of health care institutions and be able to evaluate the financial performance of institutions in asset and debt management. (3-0-3) Kovel.

HSM 539 Finance Seminar. The application of knowledge and skills acquired in the Health Systems Management finance course and the integration of decision-

making processes. Students make strategic planning, staffing, capital financing, pricing, and cash management decisions for a hospital under changing environmental trends and payment policies. These decisions will affect the hospital's financial position relative to other hospitals in the community through a computer simulation model. (3-0-3)

HSM 543 Health Law. Provides a systematic and comprehensive knowledge of law as it impacts health care delivery systems. Students acquire an understanding of contract law, tort law, corporate law, labor law, and civil procedure. (4-0-4) Brown.

HSM 545 Organizational Analysis. An introduction to the study of organizations, including structures, processes, and human behavior. This course focuses on theories and concepts in such areas as organizational research, motivation, stress, leadership, group dynamics, roles, decision making, technology, communication, ethics, and change. (4-0-4) Trufant.

HSM 551 Information Systems I. Basic information systems concepts are presented such as: systems theory, systems analysis, fundamental information systems concepts (in the areas of hardware, software, and personnel), fundamentals of information systems management and the systems life cycle. (4-0-4) Mon, Buck.

HSM 552 Information Systems II. This course will concentrate on intermediate to advanced concepts of information systems. Specific topics may include: information systems resource management, cost/benefit analysis, overview of information system topology, technology assessment and strategic planning. (4-0-4) Rose, Odwazny.

HSM 553 Advanced Information Systems. Advanced topics and concepts of information systems concentrating on specific application within health care including administrative, financial, clinical, and departmental. (3-0-3).

HSM 555 Health Care and the Elderly. This course gives students an understanding of the demographics of the elderly population, the aging process and the impact of legislation on development of a long-term care system will be the basis for the building of a model care system for the elderly. Social policy issues in the United States and other western countries will be addressed by health care providers as well as by the elderly and their families. (3-0-3) Counte, Glandon, Heelan.

HSM 557 Quality Assurance in Health Care. This course will provide the student with a comprehensive overview of the major components of a quality assurance program in various health care delivery settings, such as hospitals, mental health centers, HMOs and ambulatory care and long-term care institutions. (3-0-3) Terman.

HSM 558 Ambulatory Care. An overview of ambulatory health systems, marketing and management techniques, and professional and administrative issues. (3-0-3) Bliss, Hinrichs.

HSM 560 Health Care Policy: Formulation, Implementation and Evaluation. The topics covered will be health policy as part of the environment for providers, processes by which providers can influence policy formation, some methods of policy analyses, and pertinent recent history and relevant trends. (3-0-3) Shannon.

HSM 561 Strategic Planning. This course will provide an understanding and knowledge of strategic planning and budgeting for health care institutions. Approaches to developing strategic and operational plans will be explored. The basic accounting concepts learned in Finance I will be translated into specific financial applications and management decisions via the budgeting process. (3-0-3) Douglass.

HSM 562 Marketing Management. An understanding and working knowledge of marketing theory, terminology, techniques, and analytical approaches for marketing health services. (4-0-4) Carollo.

HSM 567 Managed Care. An overview of health maintenance organizations in theory and practice. The variations in model types and various external forces affecting their development and evolution will be explored. (3-0-3)

HSM 571 Operations Management. Fundamental operations research and industrial engineering topics as applied to health care are presented. Topics might include: project management, productivity, queueing theory, and inventory theory. (3-0-3) Keers.

HSM 572 Advanced Operations Research. The focus of this course is on the solution of management and operational problems presenting themselves in the health care delivery setting through the use of advanced quantitative techniques. Emphasis will be placed on the theory behind some of the advanced techniques developed in HSM 571. (3-0-3)

HSM 574 Health Care Delivery Systems. This course provides an overview of the scope, structure, and role of the health care delivery system and its relationship to the external environment. Management function and technique are studied within this context. Limited to clinical nutrition students or permission of instructor. (2-0-2) Hinrichs.

HSM 576 Values and Power: Ethics for Health Care Managers. Same as REL 576. (3-0-3)

HSM 582 Intermediate Statistics. This course reviews a blend of pre-, true and quasi-experimental designs as well as intermediate level statistical tests which a health systems manager will likely use operationally or in empirical research. The statistical tests include ANOVA, simple and multiple regression, and such nonparametric techniques as the Kolmogorov-Smirnov, Wilcoxon, and Mann-Whitney. Knowledge of probability theory and univariate statistics as well as hands-on DOS and SPSS-PC + computer skills, is presumed. Given a data set and articles for review, participants will design and implement a research plan, interpreting and subsequently writing their results in a journal article format. (4-0-4) Thompson, Kantutis.

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HSM 583 Advanced Statistics. Emphasis on these advanced topics and concepts in statistics will be placed upon research methods and forecasting. (3-0-3) T

HSM 595 Graduate Seminar. An analysis of selected topics and issues in health care today with the broad participation of faculty and eminent leaders in the field. (1-0-1) Senior, Glandon.

HSM 597 Masters Project. A two quarter course that provides the second-year HSM student with the opportunity to apply problem-solving techniques and evaluation methods. The student conducts an applied management study at a Chicago-area health care organization. Major emphasis is placed on developing students' report writing and oral presentation skills. (8-0-8) Oleske.

HEMATOLOGY

HEM 301 Hematology I. Study of normal hematopoiesis including development, metabolism, kinetics, and function of red cells, white cells, and platelets and an introduction to the various associated hematologic disorders. Fundamentals of hemostasis, including coagulation pathways and laboratory procedures which evaluate these mechanisms are covered. Includes laboratory experiences dealing with basic routine tests performed in a clinical hematology laboratory, such as simple automated cell counting, blood smear morphology, and reticulocyte counts. (3-12-6)

HEM 425 Hematology II. Review of normal hematopoiesis and an in-depth study of erythrocyte disorders, their etiologies, pathophysiology, clinical features, and significant laboratory findings. Prerequisite: Hematology 301. (3-0-3)

HEM 425 Hematology III. Continuation of HEM 425 with an in-depth study of erythrocyte disorders, their etiologies, pathophysiology, clinical features, and significant laboratory findings. Prerequisite: HEM 425. (2-0-2)

HUMANITIES

HUM 461 Physician as Writer. An exploration of selected fiction, chronicles and autobiographies by distinguished twentieth century physician-writers (including William C. Williams, Chekhov, and Azuela). Focus will be on writers' unique responses to questions of medical ethics, involvement in social issues, and doctor-patient relationships, as well as on physicians as philosophers and humorists. (2-0-2) Vidaver-Cohen, Cohen.

HUM 462 Physician on Stage. A stimulating new look at the physician--clinician and scientist--as major character in distinguished nineteenth and twentieth century drama. The plays focus on the physician's self-image; encounters with moral dilemmas; interactions with patients, colleagues and society and on specific medical disorders. Includes works by Peter Shaffer, Tennessee Williams, Eugene O'Neill, Henrik Ibsen and Frederic Durrenmatt. (2-0-2) Vidaver-Cohen, Cohen.

HUM 463 Disease as Subject in Contemporary Literature. An examination of the depiction of disease in outstanding fiction and poetry as well as in memoirs, journals and personal narrations of some distinguished contemporary writers who faced disease and analyzed their experiences with acute perception. Works by Albert Camus, Andrae, Gide, Eleanor Clark, John Updike, Thomas Mann, John Berryman, and Katherine Anne Porter will be considered. Lectures, readings, and discussion. (2-0-2) Vidaver-Cohen, Cohen.

HUM 464 Benjamin Rush and Sigmund Freud: Biography and Autobiography. Elective seminar focusing on the lives of Drs. Freud and Rush through a close look at letters, writings and autobiographical statements. In discussion and lecture the class will construct from these autobiographical materials the beginning of biographical statements and will consider the method and purpose of biography. (2-0-2) Catchpole.

IMMUNOLOGY

IMM 301 Basic Immunology. An introduction to the basic concepts and terminology of immunity including development, structure, and function of the lymphoid systems; the basis of antigenicity; antibody structure; methods of detection and measurement; mechanism of cellular immunity; white cell function; hypersensitivity reactions; the complement system; and mechanisms of immune suppression and tolerance. Methods of laboratory evaluation of humoral and cellular immunity are introduced. (3-0-3)

IMM 402 Clinical Immunology. Study of clinical and applied immunology as it relates to the role of the immune response in production of disease; primary and secondary immunodeficiency, atopy and other forms of hypersensitivity, autoimmunity, transplantation and tumor immunity. The use of immunology as a diagnostic, prognostic and therapeutic aid is studied. Prerequisite: Immunology 301. (2-0-2)

IMM 403 Clinical Serology. Students will learn to apply the fundamental concepts of antigen-antibody interactions to routinely performed assays of syphilis and nonsyphilis serology. Laboratory sessions cover proficiency in performance and familiarity with purpose, principles and interpretations of the following tests: RPR, CSF-VDRL, TPA, FTA-ABS, Monospot, Monotest, Heterophile, ASO, AHT, ANTI-DNAase B, RF Latex, RF SCAT, Anti-Thyroglobulin and Anti-Microsomal. Prerequisite: Immunology 301. (2-6-5)

IMM 431 Immunohematology. Blood group antigens and antibodies from the discoveries of Landsteiner in 1900 to the present day are studied. Blood banking procedures involved in drawing, testing, storing, and transfusing whole blood and its components are discussed. The laboratory section will deal with the basic blood bank procedures including ABO grouping, RH typing, compatibility testing, and special antibody studies. Prerequisite: Immunology 301. (3-6-5)

IMM 501 Immunology. An introduction to immunology with emphasis on basic concepts and principles,

interwoven with a study of their clinical applications. FA (5) [54 hours] Siegel.

IMM 502 Introduction to Experimental Immunology. A graduate introductory course covering basic concepts in experimental immunology including basic laboratory techniques. FA (3-2-4) Lint.

IMM 521 Basic and Clinical Immunology: Lecture Segment. A comprehensive introduction to immunology, with emphasis on basic concepts and principles, and clinical applications. FA (5-0-5) Lint.

IMM 531 Cellular Immunology. A comprehensive course in cellular immunology including lymphocyte ontogeny, cellular interactions, and effector cell functions, immunogenetics and tumor registry. Alt. WI (5-0-5) Gebel.

IMM 542 Biology of Membranes. A comprehensive examination of the physical, chemical, biochemical and immunological forces that contribute to the structure and function of membranes. Concepts include receptors and transmembrane signaling. Alt. SP (4-0-4) Bremer.

IMM 543 Molecular Immunology. A comprehensive examination of immunoglobulins and antigens with special emphasis on how structure relates to immune function and on the molecular basis of antibody diversity and complement reactivities. Alt. WI (4-0-4) Potempa.

IMM 555 Inflammation. A detailed examination of IgE structure and regulation mechanisms of histamine release from human cells and allergens and allergic phenomena, including the mechanisms in the inflammatory response and the interrelationships between the coagulation, fibrinolytic, and kinin systems. Alt. SP (4-0-4) Thomas.

IMM 556 Host Defense. Immunological aspects of host defense against microorganisms. Concepts will include the structure and function of the complement system, phagocytic cell function and nonspecific barriers to infection. Alt. SP (4-0-4) Lint.

IMM 561 Clinical Immunology. A review of critical topics in clinical immunology from the clinical and pathologic viewpoints. Alt. SP (4-0-4) Luskin.

IMM 571 Laboratory Tutorial. Individual program designed to acquaint the student with research protocols and interests within the department. (v-v-v) Staff.

IMM 585 Research Seminar. Seminar on contemporary topics in immunology and virology. FA WI SP (1-0-1) Lint.

IMM 590 Special Topics. Detailed independent study of selected contemporary topics in immunology. (v-v-v) Staff.

IMM 598 Pre-Dissertation Research. Research credits prior to acceptance to doctoral candidacy. (v-v-v) Advisor.

IMM 599 Independent Study. Specialized course work designed around the needs of an individual student. (v-v-v) Staff.

IMM 699 Dissertation Research. Research credits after admission to candidacy. (v-v-v) Advisor.

INTERNAL MEDICINE

MED 501, 502, 503 Clinical Pathophysiology I, II, III. Serving as a bridge between the basic sciences and clinical medicine the course helps to make the student conversant with the limits of biochemical and physiologic responses under a variety of stresses and disease states. Emphasis is in three basic areas: abnormal, general cellular biology; homeostasis; and organ system pathophysiology. The course closely coordinates with topics in the pathology course and also with didactic material to be presented during the third-year clinical program. FA WI SP [215 hours] Szidon.

MED 601 Core Clerkship in Internal Medicine. The medicine clerkship is designed to introduce students to the study and skills of clinical medicine. The case study approach is used in evaluation and management of patients and their problems so that students can develop their skills in history taking and differential diagnosis, as well as development of therapeutic regimens. By caring for patients students develop an understanding of relationships between disease states and patient hosts from the medical, social, and emotional points of view. The ward team approach allows students the opportunity to work toward the goals of good patient care and the acquisition of a solid foundation of medical knowledge. In order to ensure a broad experience in internal medicine, students are expected to supplement their learning through a self-study program of learning objectives. Prerequisite: CCS 502. FA WI SP SU [12 weeks] Rosen.

MED 605 Geriatric Medicine. An introduction to geriatric internal medicine including the identification of the problems seen most commonly in geriatric patients and the gaining of insight into the approach and management of these problems. Topics covered are drug effects and interaction in the elderly; organic brain syndrome; approach to rehabilitation of the stroke patient; problems encountered in nursing home patients; urinary incontinence and osteoporosis and its consequences. Prerequisite: MED 601. FA WI SP SU [4 weeks] Overton.

MED 606 Critical Care Medicine. The medical student will function as an "extern" under the direction of an upper level medical resident and teaching faculty. The student will admit, manage, and discharge patients. This includes procedures (within their capabilities), history and physicals, daily notes, and transfer notes. The objective of the clerkship is to provide the critical care knowledge and skills needed to ethically assess and manage critically ill patients and those patients in need of critical care monitoring. Prerequisite: MED 601, SUR 601. FA WI SP SU [4-8 weeks] Davila.

MED 610 Internal Medicine Subinternship. Students function at an advanced level, doing histories and physical examinations, diagnostic evaluations, and initiation of appropriate therapy. There is close supervision by the staff of the Department of Internal Medicine. The course is primarily intended for students desiring additional clinical

experience in internal medicine. Prerequisite: MED 601, SUR 601. FA WI SP SU [4 weeks] Rosen.

MED 611 Clinical Cardiovascular Medicine. Includes the study of the diagnostic spectrum of cardiac evaluation: bedside assessment, electro-cardiography, electrophysiology, echocardiography, cardiac catheterization, coronary angiography, interventional cardiology, preventive cardiology and exercise testing. At network hospitals, experience in bedside diagnostic and noninvasive evaluation is emphasized. Prerequisite: MED 601. FA WI SP SU [4 weeks] Parrillo.

MED 612 Medical Intensive Care Unit. Experience in the recognition and management of medical emergencies, particularly the use of temporary pacemakers, bedside hemodynamic monitoring, and respirators, and management of renal emergencies and cardiac arrhythmias. Prerequisite: MED 601. FA WI SP SU [4 weeks] Balk

MED 613 Introduction to Cardiovascular Research. Student programs are individually planned with emphasis on understanding basic research techniques rather than on the accomplishment of a specific research project. Students participate in the research program of the Section of Cardiology, including projects in human hemodynamics, preventive cardiology, noninvasive studies, myocardial metabolism, cardiovascular electronics, and computer application. Prerequisite: MED 601. FA WI SP SU [4-8 weeks] Parrillo.

MED 615 Emergency Medicine. Students will see patients in all areas of the emergency room under the supervision of attendings and residents. Emphasis will be on complaint-oriented history taking, with attention to pertinent PMH (past medical history), performance of a pertinent physical exam, recording the findings, and discussion of the patient with the supervisor who may repeat some of the exam as necessary. Together they will formulate a diagnostic plan, bearing in mind time and cost factors and priorities inherent in various diagnostic possibilities. Prerequisites: MED 601, SUR 601. FA WI SP SU [4 weeks] Hanashiro.

MED 617 Echocardiography. Four weeks of clinical experience in the echocardiography laboratory. Echocardiography studies will be used to demonstrate pathophysiologic processes. M-mode 2D, pulsed continuous wave and real time Doppler Studies will be obtained. The student will be responsible for clinical evaluation of patients undergoing echocardiography. It is expected that 10 to 15 studies will be evaluated on a daily basis as well as participate in analysis of echocardiography data. Approval of course director and assistant dean for clinical curriculum. FA WI SP SU [4-8 weeks] Parrillo.

MED 621 Clinical Endocrinology and Metabolism. Endocrine and metabolic disorders are studied under the direction of the clinical faculty. Regular departmental conferences and seminars supplement clinical work, which is primarily with hospitalized patients. Prerequisite: MED 601. FA WI SP SU [4 weeks] Mazzone.

MED 626 Clinical Nephrology. The clinical diagnosis and management of patients with renal disease as well as various fluid, acid-base, and electrolyte abnormalities are studied. In addition, the course is directed toward the proper interpretation of pathophysiologic findings and the practical management of various disorders involving the excretory system and body fluids. Prerequisite: MED 601. FA WI SP SU [4 weeks] Lewis.

MED 632 Digestive Diseases. The disciplines of hepatology and gastroenterology are studied on rounds where students review material pertinent to patients they evaluate. In addition, four weekly conferences, including clinical pathology, a general topic conference with case presentations, and journal club cover a broad range of gastrointestinal procedures. Prerequisite: MED 601. FA WI SP SU [4 weeks] Schaffner.

MED 633 Gastrointestinal Preceptorship. Rounds are made five days a week with each morning spent observing endoscopic procedures and seeing new consultations. Afternoons may be spent either seeing new outpatients in the office or new consultations in the hospital. Follow-ups on consultations is done in late afternoon rounds. Supervised readings in gastroenterology, and medical grand rounds help prepare the student for weekly gastroenterology conferences where they may make presentations. Prerequisite: MED 601. FA WI SP SU [4 weeks] Franklin.

MED 636 Clinical Hematology. Regular review of case studies with the faculty provides the basis for in-depth study of clinical diagnostic hematology, particularly through study of bone marrows and other diagnostic facilities of the laboratory. Inpatients being followed or treated by hematology are studied in a comprehensive fashion. Clinical and laboratory data are integrated and therapeutic responses are evaluated. Prerequisite: MED 601. FA WI SP SU [4 weeks] Knospe.

MED 646 Clinical Infectious Disease. Students are expected to master basic principles of diagnosis and management of patients with infections. Appropriate use of diagnostic microbiology, differential diagnosis of febrile patients, and appropriate selection of chemotherapeutic agents are taught during case presentations on daily rounds and in weekly lecture series. Prerequisite: MED 601. FA WI SP SU [4 weeks] Benson.

MED 651 Clinical Rheumatology. Emphasis is on the fundamentals of joint examination, observation and performance of laboratory examinations on synovial fluid, and familiarity with the spectrum of laboratory procedures useful in rheumatologic diagnosis and treatment. The interdisciplinary approach relies heavily on contributions of immunology, orthopedics, diagnostic radiology, physiotherapy, and occupational therapy. Prerequisite: MED 601. FA WI SP SU [4 weeks] Schnitzer.

MED 661 Clinical Oncology. Patients seen by the Section of Medical Oncology provide an ample and varied spectrum of oncological problems. Various therapeutic approaches and complications occurring in the course of the disease are discussed. The program stresses the importance of the combined interdisciplinary approach,

using the resources of the departments of surgery, therapeutic radiology, pathology, and nuclear medicine. Students will have the opportunity to participate in the kidney programs of the Tumor Ward on 10 Kellogg. Prerequisite: MED 601. FA WI SP SU [4 weeks] Cobleigh.

MED 671 Clinical Pulmonary Medicine. The management of patients with pulmonary disease provides the focus for the study of clinical management, interpretation and use of pulmonary function and ventilatory studies, and gas management. The essentials of pulmonary physiology are emphasized. Prerequisites: MED 601, SUR 601. FA WI SP SU [4 weeks] Rosen.

MED 677 Clinical Allergy/Immunology. Students work directly with house staff and their inpatients, functioning as primary allergy/immunology consultants. Under the supervision of residents, fellows, and attending staff, the student formulates a diagnostic and treatment plan and makes formal and informal teaching rounds on all (allergy/immunology service) inpatients. Multiple teaching conferences are held, many of which are directed primarily to the medical students. Each student selects a topic and carries out research in order to make a seminar presentation. Prerequisite: MED 601. FA WI SP SU [4 weeks] Zeitz.

MEDICAL PHYSICS

MPH 457 Radiation Safety of Radioactive Materials. This course reviews basic nuclear physics and health physics principles and practices, regulations and instrumentation for the safe use of radioactive material. SP (2-0-2) Majewski.

MPH 458 Radiation Detection and Measurement. A study of basic physics principles and applications with laboratory exercises on techniques and instrumentations for nuclear radiation detection and measurement as they relate to nuclear physics and radiation safety of radioactive materials. Prerequisite: MPH 457. WI SP (1-3-2) Majewski.

MPH 460 Introduction to Diagnostic Radiological Physics. The course covers medical x-ray protection for energies up to 10 MeV, x-ray equipment design and use. FA (2-v-3) Hubbard.

MPH 461 Physics of Diagnostic Radiology. An intermediate course in physics for residents in diagnostic radiology. Prerequisite: MPH 460. WI (3-0-3) Hubbard.

MPH 463 Physics of Nuclear Magnetic Resonance Imaging. This course is a basic introduction to the physical principles of NMR, with emphasis on proton NMR. Topics covered will include fundamentals of magnetic resonance, relaxation times, and the basis for imaging techniques. SP (2-0-2) Groch.

MPH 464 Concepts in Magnetic Resonance Imaging. A basic conceptual overview of magnetic resonance principles as applied in image formation is provided. Fundamental proton magnetic resonance concepts as well as basic imaging principles will be

discussed on a level appropriate for medical residents in radiology. FA (1-0-1) Groch.

MPH 465 Computer Science Applied to Imaging. The objective of this course is to present the fundamentals of computer science to physicians whose specialty is in diagnostic imaging. SP (2-1-2) Staff.

MPH 466 Radiation Protection Using Fluoroscopic x-rays. This course is designed for fluoroscopic users other than radiologists. The course includes six series of lectures covering the basic radiation physics, fluoroscopy, radiation biology and radiation protection. SU (1-0-1) Rayudu.

MPH 471 Physics of Nuclear Medicine I. The course covers: mathematics for nuclear medicine, nuclear reactions, decay schemes, half-life, decay series, interaction of radiation with matter, and detectors used in nuclear medicine. Imaging instrumentation, including scintillation camera, emission tomography, and application of the computer to nuclear medicine is covered. WI (3-0-3) Groch.

MPH 475 A Workshop in Radiopharmaceutical Science. This course covers production of radionuclides, generators; formulation & Q.C. of tracers for 16 organ localization, in vitro- in vivo-studies; dosimetry; FDA and safe handling. Compounding, biodistribution, and imaging will be studied. FA WI SP (1-0-1) Rayudu.

MPH 481 Introduction to Therapeutic Radiological Physics. The course covers basic physics, definition and measurement of dose, physical and clinical dosimetry, and quality assurance. FA (3-0-3) Kartha.

MPH 482 Therapeutic Radiological Physics. The five "p's" of radiation therapy physics are examined: prescription, physical dose, planning, precision, and pattern of treatment outcome. Additionally, interactions of x-rays and gamma-rays; measurement of exposure, calibration of high-energy photon and electron beams; and dose distributions for external-beam therapy are studied. Prerequisite: MPH 481. WI (3-0-3) Kartha.

MPH 483 Dosimetry Applied to Therapeutic Radiology. This course is designed for therapeutic radiology trainees, including residents, and is organized as a rotation in the Department of Medical Physics. The laboratory exercises consist of routine dosimetry computations in clinical radiotherapy. Prerequisite: MPH 481. SP (0-8-4) Kartha.

MPH 484 Brachytherapy Physics. This course is designed for residents in therapeutic radiology and graduate students. Topics include basic physics of radioactivity, and use of radioactive isotopes in clinical radiotherapy. Prerequisite: MPH 482. SP (2-0-2) Kartha.

MPH 486 Introductory Hyperthermia. This course will cover the physical and biological mechanisms of hyperthermia as well as the commonly used methods for delivery of heat energy for cancer therapy. SP (2-0-2) Urban.

MPH 488 Physics Applied to Dermatology. The course covers basic physics, interaction of radiation with matter, definition and measurement of dose for low-energy x-rays, and megavoltage electrons which are used for dermatological treatment. WI (1-0-1) Lanzl.

MPH 490 Medical Radiological Physics Review. An intensive review course in all branches of medical radiological physics for residents completing their formal physics training. Prerequisites: MPH 461, 471, 482. SP (3-0-3) Hubbard, Rosenfeld, Lanzl, Staff.

MPH 491 Introduction to Computers. The course covers: basic components and a systematic presentation of building blocks of computer hardware and software for beginners. SP (2-2-3) Staff.

MPH 492 Therapeutic Radiology Physics Review. An intensive review course for therapeutic radiology residents and graduate students in medical physics in preparation for the American Board of Radiology Certification Examination. SU (2-0-2) Kartha, Lanzl, Rozenfeld.

MPH 501 Radiation Physics. This course provides a rigorous examination of the interaction with matter of high-energy particles: photons, electrons, neutrons, and heavy-charged particles. FA (4-0-4) Hubbard, Jette.

MPH 502 Radiological Physics I. The course covers design and operation of accelerators; radiation quantities and units including stochastic and nonstochastic quantities; ion collection and recombination; and dosimetry systems used in therapeutic radiology and radiobiology. Prerequisite: MPH 501. WI (4-0-4) Lanzl.

MPH 503 Radiological Physics II. Continuation of MPH 502. SP (4-0-4) Lanzl.

MPH 504 Topics in Radiation Dosimetry. The course covers track-etching phenomena, registration of fission fragments, alpha particles, and recoil nuclei; wall-less detectors in microdosimetry; Katz and Kelleher-Rossi theories of particle tracks; and thermo-photoluminescence. Prerequisite: MPH 502. SP (3-0-3) Lanzl, Rozenfeld.

MPH 505 Radiological Physics Laboratory. This is a practical course directed towards understanding of the instruments, apparatus, and facilities used in applied radiation work. This course will include carrying out scientific evaluation and essay-type reporting. MPH 502. FA WI SP (v-v-v) Lanzl, Rozenfeld, Broadbent, Groch.

MPH 506 Clinical Physics Practicum. Students participate in clinical physics procedures under supervision. FA WI SP SU (v-v-v) Staff

MPH 520 Statistics for Medical Physicists, Part I. This course reviews the basic tools of statistical analysis, such as probability distributions and statistical decision theory. FA (2-0-2) Jette.

MPH 521 Statistics for Medical Physicists, Part II. Application of statistical analysis to problems of clinical and biological research. Prerequisite: MPH 520 or consent of instructor. WI (2-0-2) Jette.

MPH 531 Radiation Biology. The course will consider ionizing radiation effects on single cells, organized tissue, and the known effects on man. Emphasis will be put on those radiobiological principles which closely relate to cancer treatment. SP (3-0-3) Rubin.

MPH 542 Radiation Oncology. This course will develop the basic concepts and principles of nonsurgical cancer management. The natural history of cancers in various organs will be reviewed and therapeutic strategies developed based on the pathophysiology of different cancer sites. WI (2-0-2) Hendrickson, Lee, Murthy, Staff.

MPH 557 Radiation Protection. This course covers advanced topics in radiation protections, technical approaches for minimizing the dose, authorization to use radioisotopes, responsibilities of users, standards for radiation exposure, airborne contamination limits, transportation of radionuclides, formulation of standards, medical findings on individuals exposed to radiation, sources producing population exposure, and federal and state regulations. Prerequisite: MPH 457. FA (3-0-3) Lanzl, Majewski, Rozenfeld.

MPH 561 Physics of Diagnostic Radiology. This course covers x-ray generators; recording systems; grids; fluoroscopy; image intensifier TV systems, etc. In addition, an introduction to transfer function analysis of imaging systems is given. (3-0-3) Jette.

MPH 565 Transfer Function Analysis. Starting with a rigorous presentation of Fourier transform theory, this course develops transfer function analysis for application to imaging systems. SP (2-0-2) Jette.

MPH 571 Physics of Nuclear Medicine II. The course covers production of isotopes, radiation detection, pulse height analysis, counting statistics, imaging theory, Fourier analysis, scintillation camera, collimation of radiation, image recording, noise analysis, image processing, quality assurance, radiation safety, evaluation of image quality, digital computers in nuclear medicine, dynamic and functional imaging, emission computed tomography, biokinetics and compartmental modeling, and radioimmunoassay. Prerequisite: MPH 471. (3-0-3) Groch.

MPH 575 Nuclear Science Techniques as Applied to Biology and Medicine I. This course covers: radioactivity, measuring devices, production modes; nuclear reactor, cyclotron, generators; radiochemistry, labeling (^3H , ^{14}C , ^{125}I); and autoradiography, body counting, NAA. FA (2-0-2) Rayudu.

MPH 576 Nuclear Science Techniques as Applied to Biology and Medicine II. This course covers: labeling ($^{99\text{m}}\text{T}$, ^{131}I , ^{75}Se , ^{11}C , ^{13}N , ^{18}F) & Q.C.; tracers for 16 organs; applications in nuclear medicine, therapy, in vitro, hematology; dosimetry; radiation safety; licensing; and FDA. Prerequisite: MPH 575. WI (2-0-2) Rayudu.

MPH 581 Methods of Photon Dose Calculation. Current methods of photon dose calculation for radiation

treatment planning systems, particularly those using interaction kernels. Prerequisite: MPH 565. SP (2-0-2) Jette.

MPH 582 Methods of Electron Dose Calculation. Methods of Electron Dose Calculation. Current methods of electron dose calculation for radiation treatment planning systems, particularly those based upon Gaussian multiple - scattering theory. Prerequisite: MPH 565. WI (2-0-2) Jette.

MPH 583 Monte Carlo Methods. The EGS4 Monte Carlo code for photon/electron transport will be explained, with emphasis upon gaining "hands on" experience in using this research tool. FA (2-0-2) Jette.

MPH 590 Medical Physics Research Seminar. This seminar serves as a forum for review of the ongoing research by the faculty, appropriate staff members, fellows, and graduate students. FA WI SP (2-0-1) Staff.

MPH 597 Introduction to Research. The student will undertake a directed project with a faculty member as an introduction to research. FA WI SP SU (v-v-v) Lanzl, Kartha, Rozenfeld, Jette.

MPH 598 Thesis Research. Under the guidance of a faculty member and committee, the student originates, proposes and executes basic or clinical research. FA WI SP SU (v-v-v) Lanzl, Kartha, Rozenfeld, Jette, Hubbard.

MPH 599 Independent Study. The student will undertake a creative project design under the supervision of a faculty member. FA WI SP SU (v-v-v) Lanzl, Kartha, Rozenfeld.

MPH 699 Dissertation Research. Postcandidacy research by arrangement with staff. FA WI SP SU (v-v-v) Rozenfeld, Lanzl.

MEDICAL TECHNOLOGY

MTK 303 Body Fluid Analysis. Analysis of various body fluids with emphasis on the theory and practice of clinical procedures. Component topics will include the analyses of urine, gastric juice, cerebral spinal fluid, feces, semen, transudates, and exudates. (3-6-5)

MTK 304 Basic Laboratory Skills. Study and practice of basic laboratory skills used in the various clinical laboratory areas. Topics covered include instrumentation, proper use and maintenance; manual skills such as pipetting, titrating and venipuncture; preparation and standardization of reagents; and laboratory calculations. (3-12-6)

MTK 405 Clinical Laboratory Information Systems. An introduction to computerized information systems used in the clinical laboratory including development, function, and maintenance. Fundamental computer concepts, concerns in managing computer resources, as well as system analysis, implementation, and evaluation will be discussed. Laboratory sessions will be used to reinforce the technical material and demonstrate the application of the conceptual issues. (2-0-2)

MTK 421 Practicum in Clinical Chemistry. Rotation through the hospital clinical biochemistry laboratories. The course includes the application of basic skills learned in student chemistry laboratory, instrumentation, and advanced methodologies. (0-24-8)

MTK 422 Practicum in Hematology. Rotation through the hospital clinical hematology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are included. Radio[HO]hematology, bone marrow techniques, and coagulation are also covered. (0-24-8)

MTK 423 Practicum in Immunology. Rotation through the hospital clinical immunology laboratory. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. (0-16-4)

MTK 424 Practicum in Microbiology. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. (0-24-8)

MTK 425 Practicum in Immunochemistry. Rotation through the hospital blood bank laboratory. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. (0-16-4)

MTK 441 Seminar in Medical Technology. Discussion of current topics in medical technology and associated fields. Students present abstracts. (2-0-2)

MTK 442 Seminar in Medical Technology II. (1-0-1)

MICROBIOLOGY

MIC 311 Diagnostic Bacteriology. Special emphasis is on diagnostic procedures employed in the clinical bacteriology laboratory, such as specimen collection, isolation and identification of medically important bacteria, antibiotic sensitivity testing, and determination of serum antibiotic levels. Course includes laboratory exercises associated with these various concepts. Development of proficient skills in the various techniques is stressed. (4)

MIC 411 Parasitology, Mycology, and Virology. This course provides clinical background in mycology, parasitology, and virology. Emphasis is on the disease involved and on diagnostic procedures used in the laboratory. The laboratory portion consists of identification, specimen collection and processing of medically important viruses, fungi and parasites. Prerequisite: MIC 311. (3-6-5)

MIC 451 Microbiology Concepts. An introduction to the morphological and physiological characteristics of infectious agents of importance in human disease. SP (5-1-5) [55 hours] Peebles.

MIC 501 Clinical Bacteriology. The experience provides rotation in each section of the diagnostic bacteriology laboratory with emphasis on laboratory identification of bacteria. Prerequisite: MIC 451. (v-v-v) [4 weeks] Landau.

Course Descriptions

MIC 505 Basic Microbiology. A graduate introductory course covering basic concepts and laboratory techniques in experimental bacteriology and virology. FA (3-2-4) Peebles.

MIC 523 Molecular Genetics. Contemporary study of topics in gene organization, transcription, translation, and gene regulation. Alt. SP (4-0-4) Kwan.

MIC 531 Virology. Advanced study of human and animal viruses and their interactions with cells. Prerequisite: MIC 451. Alt. WI (4-0-4) Gupta.

MIC 561 Clinical Microbiology for Graduate Students. A review of critical topics in clinical microbiology from the clinical and pathologic viewpoints. SP (3) Landau, Peebles.

MIC 590 Special Topics. Detailed independent study of contemporary topics in microbiology. (v-v-v) Staff.

MIC 599 Independent Study. Specialized course work designed around the particular needs of an individual student. (v-v-v) Staff.

MIC 610 Clinical Microbiology. Students will rotate through each of the basic areas of the microbiology laboratory. Specimen handling, laboratory identification of organisms, and clinical correlation are covered. Permission of instructor. Prerequisite: any core clerkship. [2 weeks] Landau.

NEUROLOGICAL SCIENCES

NEU 451 Medical Neurobiology. An integrated approach to the central and peripheral nervous system from an anatomic, physiologic and neurochemical standpoint is presented. Based on neuroanatomy, major systems are developed and discussed in terms of anatomic arrangement, physiologic functioning and related synaptic pharmacology. In all systems clinical lectures highlight the practical applications of basic science concepts in patient evaluation and management. (4-3-5) [78 hours] Kerns, Zimmermann.

NEU 501 Introduction to Neuroscience. The physiology of neurons and glia, synaptic processes, sensory receptor physiology, spinal cord, cerebellum and motor control, peripheral mechanisms in sensory systems and higher functions of the nervous system. Neuroanatomical concepts will be correlated to the physiology. Prerequisite: ANA 465. WI (4-0-4)

NEU 601 Core Clerkship in Neurology. Patients with various neurological disorders are studied; invasive and noninvasive techniques are observed and practiced. Designed to maximize the use of time that students spend in neurology, extensive discussion of each case by senior resident staff and attending physicians are utilized to enhance exposure to neurologic disease. Formal lecture attendance at weekly department conferences and teaching rounds held six days a week provide training in basic neurodiagnostic techniques. Prerequisite: MED 601 FA WI SP SU [4 weeks] R. Wright.

NEU 602 Advanced Neurology. Students further develop their clinical skills as they participate in the outpatient activities of the neurology department including seeing patients in the movement disorder, epilepsy, muscular dystrophy, and multiple sclerosis clinics. Prerequisites: MED 601, NEU 601. FA WI SP SU [4 weeks] R. Wright.

NEU 603 Clinical Neurology II. A unique opportunity for intensive exposure to general neurology practice is provided in a busy community hospital setting. MacNeal Hospital neurology service provides both inpatient and outpatient experience. Prerequisite: NEU 601. FA WI SP SU [4 weeks] Palac.

NEU 621 Critical Care Neurology. The student will learn to evaluate and manage patients with various critical neurological problems (e.g., coma, stroke, status epilepticus, brain death) and understand the use of diagnostic studies in these conditions. Approval of course director required. Prerequisite: NEU 601. FA WI SP SU [4 weeks]

NEU 681 Neurological Research. Students participate in ongoing research projects within the department. Current areas of investigation include neuropharmacology, movement disorders, cerebrovascular disease, sleep disorders, epilepsy, neuromuscular disorders, multiple sclerosis, and dementia. Prerequisite: NEU 601. FA WI SP SU [v] R. Wright.

NURSING--ANESTHESIA

NAN 521 Chemistry and Physics in Anesthesia. An introduction to principles of chemistry and physics for nurse anesthesia practice. Major emphasis is on physical chemistry, e.g., states of matter, gas laws, thermodynamics and solutions. FA (4-0-4)

NAN 600 Residency in Anesthesia Nursing. A 52-week, 4-quarter residency following completion of the anesthesia nursing curriculum which provides the opportunity of clinical proficiency in anesthesia practice. Includes journal clubs and conferences. No academic credit given.

NURSING

NUR 302 Foundations of Nursing Practice. An introduction to the nursing process, providing necessary beginning for integration of the biological, behavioral, and management concepts required to understand contemporary nursing practice. Emphasis is placed on professional nursing concepts and includes nursing diagnosis, nursing process, communication, and patient education. FA (3-3-6)

NUR 302H Foundations of Nursing Practice. Same as NUR 302. Offered to Graduate Entry Level students only. SU FA (3-3-6)

NUR 303 Basic Health Assessment. A basic systematic approach for obtaining and recording a complete health history and physical examination of well individuals. Ethical and cultural issues are presented;

screening and risk assessment are addressed. SU FA (2-1-3)

NUR 314, 315 Medical Surgical Primary Clinical I, II. Two five week courses in pathophysiology, advanced health concepts, and application of related nursing science. The nursing process is utilized in promoting optimal health and minimizing the complications of disease. Courses offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361, 341-344 or equivalent. (5) (5)

NUR 316 Pediatric Nursing Primary Clinical. Concepts of growth, development, the nursing process, and family centered care are integrated throughout the course. The focus is on commonly occurring acute and chronic health problems in the pediatric population. Inpatient settings are used to provide a complete range of child and family nursing care experiences. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361, 341-344 or equivalent. (5)

NUR 317 Obstetrical Nursing Primary Clinical. Normal physiologic and psychosocial adaptations during the childbearing cycle are discussed as well as the common problems that occur in mother and infant. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361, 341-344 or equivalent. (5)

NUR 318 Gerontological Nursing Primary Clinical. Focuses on the clinical management of common health problems of the older adult. Common age related physiologic and psychosocial adaptations are also examined. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361, 341-344 or equivalent. (5)

NUR 319 Community Nursing Primary Clinical. Basic concepts of community health nursing practice with individuals, families, and communities. Identification of the roles and functions of the community health nurse in view of the health illness continuum. The nursing process is utilized to provide care and clinical experience in the home, outpatient settings, and community agencies. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361, 341-344 or equivalent. (5)

NUR 320 Psychiatric Nursing Primary Clinical. The major psychiatric disorders and their management are covered, as well as communication skills necessary for a therapeutic relationship. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 363, 341-344 or equivalent. (5)

NUR 341 Natural Science Basis for Nursing Practice: Microbiology. An introduction to the characteristics of bacteria, fungi, algae, protozoa, and viruses. Environmental microbiology and pathogenesis are emphasized. Laboratory methods are not included. FA(2-0-2)

NUR 342 Natural Science Basis for Nursing Practice: Inorganic Chemistry. An introduction to the fundamentals of inorganic chemistry. Compound structures, the periodic table, laws and theories of chemical

reactions, solutions, gases, and acid base will be presented. SP (2-0-2)

NUR 343 Natural Science Basis for Nursing Practice: Organic Chemistry and Biochemistry. The composition, structure, properties, and reactions of carbon compounds and biological substances and process will be discussed. Emphasis will be on those aspects of organic chemistry which are important in understanding biochemistry and biologically important compounds. SU (3-0-3)

NUR 344 Natural Science Basis for Nursing Practice: Anatomy and Physiology. A systems approach will be used as the organizational framework for this introductory course. Each unit represents content that is fundamental to understanding the structure and function of the human system being studied. SU (4-0-4)

NUR 361 Pathophysiology. A conceptual approach to the alterations in normal physiologic processes that can occur during the life cycle. Prototypes are used to illustrate disease concepts. Prerequisite: All modules of Natural Sciences Basis for Nursing NUR 341-344 or equivalent. FA (4-0-4)

NUR 363 Theories of Human Response to Illness. Human responses to illness are discussed using various conceptual frameworks. Nursing approaches that facilitate adaptation are explored. WI (4-0-4)

NUR 382 Introduction to Nursing Research. An introduction to the basic concepts, techniques, and methods of the research process and evaluation of contemporary nursing research. Prerequisite: An introductory statistics course. SP (2-0-2)

NUR 390 Selected Topics in Nursing. The registered nurse student focuses on role changes for professional practice. Issues and problems related to the nursing profession within current and emerging health care systems are examined. The course is prerequisite to NUR 314-320 and 411-413. FA (2-3-3)

NUR 402 Heritage of Nursing. Study of the development of the nursing profession and contribution of nursing leaders within the context of societal and cultural factors. Emphasis is on the contribution, trends, and issues that influence individuals and the nursing profession. SP (3-0-3)

NUR 403 Social Systems Theory and Nursing. Theories and dynamics of social systems are examined as they relate to nursing practice. A life span approach is used. Corequisite: NUR 363. FA (3-0-3)

NUR 405 Role of the Nurse in Health Care Systems. Content focuses on the application of leadership and management principles to patient care situations encountered in a variety of settings. Professional, political, legal, and ethical issues are considered. FA WI (3-0-3)

NUR 405H Role of the Nurse in Health Care Systems. Focus is on the managerial components of health care delivery systems. Emphasis is placed on the role of the nurse as leader and manager. Theoretical and

Course Descriptions

application perspectives are included. Ethical, political, and professional issues are presented. Offered to Graduate Entry Level students only. FA SU (3-0-3)

NUR 406 Nursing and the Human Condition. Works of literature are used to explore issues of the human condition related to suffering, death, and professional ethics confronting nurses in professional practice. FA WI (3-0-3)

NUR 407 Autonomy and Heteronomy. Explores the tension between the requirements of the authentic self and the needs of society through the representative works of selected authors. SP (2-0-2)

NUR 408 Women's Health Care: The Provider's Role. Physiological, psychological, sociological, cultural, and historical perspectives of women throughout the life span are discussed. Nursing principles are integrated with empirical data for the promotion of optimal functioning. WI (2-0-2)

NUR 410 Educational Processes in Nursing. Theories of teaching-learning are examined and applied to nursing practice. SP (2-0-2)

NUR 411 Nursing for Health Promotion and Maintenance. Emphasis is given to health promotion activities for individuals, families, populations. A life cycle approach is used to develop strategies for risks identified in individuals and families. The role of the nurse related to legal, economic, social and management issues in health promotion is discussed. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: Four primary clinical courses 314-320 inclusive. (5)

NUR 412 Nursing for Health Restoration and Support. Focus is on the integration of science, technology, and art of nursing practice with complex, acutely ill patients of all ages. Skills are enhanced in physical and psychosocial assessment, clinical decision making, and interventions for the acutely ill, high risk patient and their families. Health care trends, ethical and legal issues that effect the acutely ill child, adult and elderly individual are discussed. Student practice is in medical, surgical, gerontological, community, psychiatric, and parent child nursing areas. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: Four primary clinical courses 314-320 inclusive. (5)

NUR 413 Nursing for Continued Care and Rehabilitation. Focus is on issues and common problems experienced by individuals of all ages with chronic physical and mental illnesses and disabilities. Emphasis is on the promotion of optimal functioning of the chronically ill and/or disabled individual and the family. Student practice is in medical, surgical, gerontological, community, psychiatric, and parent child nursing areas. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: Four primary clinical courses NUR 314-320 inclusive. (5)

NUR 422 Basic Cardiac Arrhythmias. Self-paced mastery learning mode used to help students recognize and describe common disorders of cardiac rhythm, hemodynamic mechanisms and nursing implications. Prerequisite: NUR 361. SP (2-0-2)

NUR 423 Intraoperative Nursing. Focus is on intraoperative phase of patient care. prerequisite: four primary clinical courses, NUR 314-320 Inclusive. FA SP (1-3-4)

NUR 441 Independent Clinical Study. Intensive independent study in a clinical area of nursing. (v)

NUR 449 Independent Study. Student contracts with nursing faculty for independent academic study in an area of nursing. (v)

NUR 451 Intermediate Pharmacology. Clinical pharmacokinetics and pharmacotherapeutics. Content specific biochemical and physiological mechanisms of drug actions. Focus on clinical application and synthesis from selected disease states. Prerequisite: NUR 343, NUR 361 or equivalent. WI SU (3-0-3)

NUR 472 Introduction to Normal and Clinical Nutrition. The focus of the course is nutrition and its relation to health and illness. Concepts to be explored include nutritive substances and processes, recommended dietary allowances, the basic four food groups, evaluation of nutritional status, and changing nutritional requirements throughout the life cycle. Drug and nutrient interactions, food misinformation, hospital diets, and specialized nutritional support techniques are also examined. WI SU (2-0-2)

NUR 501 The Use of Concepts, Models, and Theories in Nursing Practice. Emphasis of seminar course is on the use of models, the theoretical basis, and the operation of models in nursing. FA SP (2-0-2)

NUR 502 Role of the Nurse in Advanced Practice. Examination of professional nursing issues including legal, ethical, legislative, collaboration and collegiality, marketing and economical components. Models are examined that influence the scope of practice of nurses in advanced practice roles. FA SP SU (2-0-2)

NUR 504 Management of Emergent Cardiopulmonary Situations. Focus is on the application of principles of advanced cardiac life support and emergency care to develop skills in understanding and managing acute respiratory and cardiac emergencies. Upon completion of this course, students have the opportunity to become ACLS certified. SU (1-3-2)

NUR 505 Ambulatory Diagnostics. Preparation in laboratory techniques necessary for the delivery of primary care practice is provided. SU (1-3-2)

NUR 506 Maternal-Infant Assessment. Analysis of the interplay between the child, parent, and environment as a predictor of infants and children who are vulnerable for developmental alterations. Upon completion of this course, students have the opportunity to become NCAST certified for one additional credit hour. SP (3-0-3; 3-1-4 [for certification])

NUR 515 Advanced Practitioner as Teacher. An overview of the philosophy of education, teaching and

learning theories, assessment and evaluation of learning, and teaching methodologies is studied within the context of application to public and professional education. FA (2-0-2)

NUR 516 Education Program Development and Design. Androgical principles are applied in the process of designing and developing educational programs. Transferrable concepts which may be applied to continuing and/or academic programs are considered. WI (3-0-3)

NUR 517 Evaluation in Health Care Education. Evaluation as a process of systematic inquiry which allows for the assessment of desired outcomes is explored through the analysis of various evaluation models. The evaluation process of identifying outcomes, collecting, interpreting, and using evaluation data in nursing practice, management, and education is examined. SP (3-0-3)

NUR 521 Nursing Research: Critique for Practice. Research studies are analyzed and evaluated relative to an identified clinical problem. Includes concepts, methods, and strategies inherent to the research process with a focus on design, internal and external validity, sampling, measurement, and ethical issues. Prerequisite: PVM 541 or equivalent. WI SU (2-0-2)

NUR 522 Health Promotion and Disease Prevention. Models are used to discuss health states and to design health promotion strategies for community groups. Topics include target behaviors for intervention, forces influencing life style, and nursing practice techniques for improving health outcomes. SU (3-0-3)

NUR 523 Concepts and Issues in Clinical Nutrition. Current concepts and issues in clinical nutrition are examined. All age groups are included. Topics include: nutritional assessment, management of critically ill and immunosuppressed patients, ethical issues, physical fitness and athletic performance, obesity and other nutritional disorders. Prerequisite: Previous nutrition course. SP (2-0-2)

NUR 524 Scientific Basis of Cancer Treatment. Focus is on the scientific basis of diagnostic and therapeutic modalities of malignant disease including surgery, radiation therapy, chemotherapy, immunotherapy, and bone marrow transplantation. Relevant theories, research, and clinical applications are examined. WI (2-0-2)

NUR 525 Management Issues in Nursing. The theoretical and practical aspects of current issues in nursing management are explored. Issues include internal organization, power structure, external forces, cost management and quality assurance. WI SP (3-0-3)

NUR 529 Pharmacology. Drug interaction with body tissues, including absorption, distribution, metabolism and excretion is studied. Biochemical and physiologic mechanisms of drug actions are discussed. WI (3-0-3)

NUR 530 Pharmacotherapeutics. Advanced principles of drug intervention is discussed. Issues of drug action including uptake, distribution and metabolism related to all drug categories is emphasized. Focus is on assessment

and nursing intervention related to drug therapy. Prerequisite: NUR 529 SP (1 - 6)

NUR 531 - 536 Clinical Seminars in Master of Science Nursing Practice. A matrix of nursing courses that allows concentrated study in a specialized area of nursing practice at the master's level.

NUR 531A Basic Principles of Anesthesia Nursing. Principles and skills basic to the practice of anesthesia are discussed. Focus is on patient assessment and planning care. Prerequisite: NAN 521, PHY 555, PPH 523. WI (3-0-3)

NUR 531B Advanced Principles of Nursing Care in Anesthesia Nursing. Anesthesia principles related to surgical specialties and perioperative management are discussed. Emphasis is on understanding of anatomic, physiologic/pathologic principles, and use of pharmacologic intervention. Prerequisite: NUR 530, 531A SP (3-0-3)

NUR 531C Anesthesia Nursing Care of the Pediatric and Obstetrical Patient. Anesthesia related to the specialty areas of pediatrics and obstetrics is discussed. Specific assessment and planning skills needed for these patient groups are highlighted. Prerequisite: NUR 531B. SU (3-0-3)

NUR 532A Community Health Assessment: Basic Concepts and Methods of Community Health. Introduction to concepts and methods of assessing health status among community groups is presented. Theories and epidemiological frameworks are incorporated into the health assessment of groups and populations. WI (2-0-2)

NUR 532B Community Health Assessment: Assessment, Diagnosis and Community Planning. Theoretical frameworks are used for the diagnosis of and planning for data based community health problems. Prerequisite: NUR 532A. SP (3-0-3)

NUR 532C Community Health Assessment: Program Implementation and Evaluation. Formulation of implementation strategies and evaluation schemes for program development are discussed. Emphasis is on evaluation methods and innovative nursing practice in the community. Prerequisite: NUR 532B, SU (2-0-2)

NUR 532D Home Health Delivery Systems. Focus is on home care delivery systems, provision of quality care to the patient in the home, and administrative theories to the management of agency and staff. WI (3-0-3)

NUR 532E Nursing Care of the Patient in the Home. Focus is on common clinical problems in home care. Discussion includes comprehensive case management of physiological and psychosocial problems associated with the care of home bound persons of all ages. Prerequisite: NUR 532D SP (3-0-3)

NUR 532F Home Health Management. An overview is given of the history and trends that affect the current home health environment. Regulatory, legislative, and competitive forces impacting home care delivery are discussed. Prerequisite: NUR 532E SU (3-0-3)

NUR 533A Assessment and Screening in Parent/Child Nursing. Evaluation of assessment and screening tools in the care of parents, children and families is presented. Emphasis is on risk assessment. FA (3-0-3)

NUR 533B Nursing Care in High Risk Pregnancy. Focus is on recognition of actual and potential complications of pregnancy. Emphasis is on anticipatory guidance and nursing management. Prerequisite: NUR 533A, WI (3-0-3)

NUR 533C Nursing Care of the High Risk Neonate. Focus is on actual and potential complications of the neonatal period. Emphasis is on care of the premature infant. Prerequisite: NUR 533A. SP (3-0-3)

NUR 533D Nursing Care of the Acutely Ill Child. Management of acute health problems in the pediatric age groups is discussed. Developmental issues, research analysis patient and family teaching is incorporated. Prerequisite: NUR 533A. WI (3-0-3)

NUR 533E Nursing Care of the Chronically Ill Child. Management of chronic health problems in the pediatric age groups is discussed. Family functioning, long term care issues, emotional, social, economical implications are incorporated. Prerequisite: NUR 533 A. SU (3-0-3)

NUR 534A Nursing Care of the Ill Adult. Focus is on the physiological and psychological concepts applicable to the medical and surgical adult patient. Advanced practice is addressed with application of concepts to particular area of student interest. Prerequisite: PHY 555, 556. FA WI (3-0-3)

NUR 534B Nursing Care of the Critically Ill Patient. Concepts from basic and applied sciences of critical care nursing and research based strategies for implementation are applied to critically ill population of all age groups. Prerequisite: PHY 555, 556, PPH 523, 524. SP (4-0-4)

NUR 534C Nursing Care of the Chronically Ill Adult. The impact of chronic illness on the adult is explored. Strategies for nursing management of common problems are emphasized. SU (3-0-3)

NUR 534D Nursing Care of the Cancer Patient. Focus is on clinical manifestations of infection, sepsis, spinal cord compression, nausea and vomiting, and stomatitis observed in cancer patients. Pathophysiological bases and interventions to prevent or minimize these manifestation are discussed. Emphasis is on the physiological and psychological sequelae. Prerequisite: NUR 524, PPH 522. SP (3-0-3)

NUR 534E Nursing Care of the Orthopaedic Patient. Skeletal function and movement are the foundations for discussion of nursing care related to selected orthopaedic problems. All age groups are included. Process and outcome criteria for common orthopaedic nursing diagnoses are emphasized. 1993 (4-0-4)

NUR 534F Nursing Care of the Neurological Patient. Nursing care of patients with nervous system dysfunction is

explored on a continuum from critical care through rehabilitation. Pre or Corequisite: NUR 534A. SP 1992 (3-0-3)

NUR 534G Nursing Care of the Transplant Patient. Research related to transplantation including immunology, infectious disease, and current practice of pre, intra, and postoperative care, organ procurement, ethical, and psychological issues is discussed. Prerequisite: NUR 529, 534, A PHY 556, PPH 524. SU 1993 (4-0-4)

NUR 534H Nursing Care of the Cardiopulmonary Rehabilitation Patient. Research based nursing care of patients is studied with ischemic, mechanical, electrical, ventilatory, oxygenation, perfusion and diffusion disturbances. All age groups are included. Prerequisites: NUR 523A, 529, PPH 524. SP (3-0-3)

NUR 534J Nursing Care of the Cardiopulmonary Patient. Research based concepts are studied of risk factor modification, activity tolerance and prescriptions, quality of life, limiting disease progression and evaluating rehabilitation benefits across the lifespan. Prerequisite: PHY 555, 556. SU 1993 (3-0-3)

NUR 534L Nursing Care of the Disabled Patient. Focus is on concepts and theories necessary for delivering and coordinating care and promoting independence in physically disabled individuals in institutional and community settings. Offered in WI 1992 (3-0-3)

NUR 535A Assessment and Evaluation in Delivery of Mental Health Services. Focus is on the multiaxial assessment and interventions of major psychiatric syndromes within the context of the changing mental health care system. FA (3-0-3)

NUR 535B Nursing Care of the Psychiatric Patient. Theoretical basis for psychotherapeutic nursing interventions is examined from a developmental perspective. The collaborative work of nurse and client is examined from initial contact through termination. Prerequisite: NUR 535A. WI (3-0-3)

NUR 535C Group Psychotherapy. An in depth analysis of theory and research is presented as a basis for the clinical practice of group psychotherapy. Prerequisite: BHV 526. SU (3-0-3)

NUR 535D Psychopharmacology for Advanced Psychiatric Nursing Practice. Addresses pharmacotherapeutics for psychiatrically ill individuals and populations. Includes medications used for the diagnosis and treatment of psychiatric disorders and monitoring the physical, behavioral and psychological responses to such interventions. Prerequisite: ANA 462 or equivalent; Corequisite: BHV 528 SP (3-0-3)

NUR 536A The Aging Adult: Wellness and Frailty. The focus is assessment and nursing management for healthy and frail elderly to promote, maintain, and restore optimal functioning. WI (3-0-3)

NUR 536B Nursing Care of the Older Adult. Management of common health problems of older adults is

studied. Emphasis is on assessment and intervention related to health promotion, health maintenance, and restorative care. SP (3-0-3)

NUR 541 Master's Practica. A minimum of 12 quarter hours of specialty practice are planned conjointly by the master's student and faculty member. Prerequisite: or Corequisite: Selected NUR 531-536. Clinical conference is included. (v)

NUR 547 Independent Clinical Study. Intensive independent study in a specialty clinical area of nursing is provided with faculty contract. Prerequisite: NUR 541. (v)

NUR 549 Independent Study. Contract with faculty member for conducting an independent academic study in a specialized area of nursing. (v)

NUR 551 Evaluation of Theories. Various methods of theory analysis are discussed and selected theories are analyzed. Emphasis is on utility of theories in nursing practice, education, and management. Prerequisite: NUR 501 or equivalent. WI SP (2-0-2)

NUR 553 Impact of Complex Systems on Health Care. Focus is on the impact of economic, political, technological, regulatory, and competitive forces on health care. FA (2-0-2)

NUR 571 Utilization of Nursing Research in Clinical Practice. Issues associated with diffusing nursing research and the challenge to incorporate research findings into the practice of nursing are studied. Theories and conceptual frameworks are critically analyzed that describe processes for using research to change nursing practice. Prerequisite: NUR 521 Corequisite: PVM 542 or equivalent. FA WI (2-0-2)

NUR 580 Nurse Doctorate; Issues in Practice. Focus is on in depth discussions of clinical issues related to a practice area.

NUR 580A Issues in Pain Relief. Students explore the various theories of pain and how pain relief strategies evolve from these theories. The application of this knowledge to selected nursing practice situations is emphasized. FA (2-0-2)

NUR 581 - 583 Clinical Seminars in Nurse Doctorate Practice.

NUR 581A Primary Health Care of Children. Synthesis of physical, psychosocial and developmental theories and concepts are provided for the management of well children by nurse practitioners. Emphasis is on health promotion and disease prevention. WI (3-0-3)

NUR 581B Primary Health Care of Acutely Ill Children. Analysis of research and theories for management of common pediatric illnesses is discussed. Emphasis is on the integration of content for the clinical setting and collaborative care between nurse and physician. SP (3-0-3)

NUR 582A Primary Health Care of Women. Focus is on health maintenance and management of common gynecologic problems throughout the life cycle. Antepartal, postpartal, and interconceptual care is included. SU (3-0-3)

NUR 582B Primary Health Care of Adults I. A theoretical and research based developmental approach to provide primary health care to adults of all ages in ambulatory settings is presented. Includes disease prevention and early screening/assessment and management for: neoplastic diseases; nutritional problems; psychiatric disorders; pain and thermal abnormalities; ocular, respiratory, and cardiovascular diseases. FA (3-0-3)

NUR 582C Primary Health Care of Adults II. A theoretical and research based developmental approach to provide primary health care to adults in ambulatory settings is presented. Includes disease prevention assessment and management in infectious disease; endocrine disorders; hematologic disorders. gastrointestinal diseases; renal disease; allergic responses; dermatologic disorders; and musculo-skeletal disorders. WI SP (3-0-3)

NUR 582D Advanced Nursing Practice in Geriatric Settings. Nursing management of elderly in settings such as institutions, sheltered environments, the home, ambulatory clinics, and other community settings. (3-0-3)

NUR 583A Advanced Psychiatric Nursing Care of Children and Adolescents. Biological and developmental perspectives are used to critically examine theory and research related to child psychiatric nursing phenomena. Emphasis is on assessing childhood psychopathology with its impact on adaptation, learning, and social relationships. (3-0-3)

NUR 583B Psychiatric Nursing Care of the Older Adult. Theoretical and clinical knowledge of common psychiatric issues that confront older adults is expanded. Common issues to be addressed include: depression, dementia, paranoia, and somatization. Prerequisite: BHV 528 or equivalent. (3-0-3)

NUR 583C Advanced Psychiatric Nursing Care of Selected Adult Populations. Integrated framework for the comprehensive (multiple system) analysis of the etiology, assessment, and treatment of selected psychiatric disorders for advanced nursing practice. Emphasis is on presentation of theoretical and research perspectives (psychological, sociocultural, cognitive/behavioral, and biological) affecting the individual, their behavior, immediate and distant environment. WI (3-0-3)

NUR 583D Ethics in the Clinical Setting. Ethical issues for a specialty clinical area are analyzed using ethical theories, principles, and values. Ethical decision making skills are developed. SU 1993(1-1-2)

NUR 586 Introductory Multivariate Statistics. Concepts of multivariate statistics are introduced including multivariate regression, analysis of variance, cluster analysis, factor analysis, and loglinear modeling. Prerequisite: Intermediate Statistics. SU (3-0-3)

NUR 588 Doctor of Nursing Project. An individual or a group of students contract with faculty members to plan, initiate, and evaluate a research based change in nursing practice. (2)

NUR 591 Doctor of Nursing Practica. A minimum of eight (8) credit hours of specialty practice are planned conjointly by the nurse doctorate student and faculty member. Prerequisite or Corequisite: Selected NUR 581.

NUR 596 Nurse Doctorate Seminar. Student and faculty identify and explore issues and problems that evolve as students develop and enact dimensions of the nurse doctorate role. Prerequisite: NUR 571, 591. SU (2-0-2)

NUR 599 Independent Study. Student contracts with faculty member for independent academic study in a selected area of nursing. (v)

NUR 601 Theory Development. Theory construction is explored through the study of the philosophy of science. Course extends over two quarters. Prerequisite: NUR 501 or equivalent. SP (4-0-4)

NUR 622 Concepts, Models, and Research Methods in the Study of the Life Cycle. An overview of theories is included of individual development throughout the life span. Innovative research methodologies are explored to study individual development in the context of the environment. Prerequisite: NUR 671 or equivalent. SP (3-0-3)

NUR 671, 672 Research Design and Methods I, II. Promoted are the development, integration, and application of knowledge, attitudes, and skills requisite to functioning as a clinical nurse scientist. Emphasized are the critical appraisal of selected measuring mechanisms and the design of clinical nursing research study. Prerequisite: PVM 543 or 8 q.h. graduate statistics. NUR 671 SU (3-0-3), NUR 672 SP SU (3-0-3)

NUR 675 Qualitative Research Methods. Focus is on selected issues in the design, conduct, and reporting of qualitative research. Experience with data management and analysis included. Prerequisite: NUR 672. SU (2-0-2)

NUR 688 Directed Research. Independent research experience to test theory and/or gather data under the guidance of a faculty member is provided. Corequisite NUR 671, 672 (1-4)

NUR 689 Research Grantsmanship. Information and skills essential to the process of development and submission of a research grant application is provided. SU (2-0-2)

NUR 691 Doctorate of Nursing Science Practica. At least 20 credit hours of individually designed courses of independent study are planned conjointly by the doctoral student and the academic advisor. (v)

NUR 696 Doctorate of Nursing Science Seminar. The components of clinical practice in Nursing is critically

analyzed at the Doctor of Nursing Science level. SU WI (2-0-2)

NUR 699 Dissertation Research. Contract with faculty members and Associate Dean for Nursing Education for independent research. Doctoral candidate must be enrolled for at least three quarter hours each quarter until dissertation has been defended. (v)

CLINICAL NUTRITION

NTR 503 Management in Dietetics. An examination of management strategies and techniques used in delivery of food and nutrition services in a health care setting. FA (3-0-3)

NTR 505, 506 Applied Clinical Nutrition I, II. The interrelationships between diet intervention/treatment and disease states are reinforced. Students apply principles of diet therapy to various disease states. Principles of enteral and parenteral nutrition are included. Limited to clinical nutrition students. SP SU (3-0-3) (3-0-3)

NTR 511, 512 Supervised Experience in Food Systems Management I, II. Students function as members of the management team in the food service units of the medical center. Through increasingly complex learning experiences, students will be expected to develop competence as an entry level practitioner in food service management. Limited to clinical nutrition students. FA WI (0-24-3) (0-24-3)

NTR 513, 514 Supervised Experience in Food Systems Management III, IV. Students will plan, organize, direct and evaluate nutrition care for individuals and groups of varying ages and lifestyles, in sickness and health. Students will function as members of the health care team with increasingly complex learning experiences and clinical responsibilities. Limited to clinical nutrition student. SP SU FA (0-24-3) (0-24-3) (0-v-2)

NTR 515 Supervised Dietetic Staff Experience. The student will assume full responsibility for a patient care unit under the supervision of a staff dietitian. FA (0-40-5)

NTR 521 Human Metabolism I. Lectures present important and relevant pathways in human biochemistry and metabolism as they relate to nutrition. The course focuses on carbohydrate catabolism/anabolism at the cellular, organ and total body levels. FA (3-0-3)

NTR 522 Human Metabolism II. Emphasis is on lipid and protein metabolism. Lectures will focus on the chemical nature, sources, storage, transport and utilization of fatty acids and cholesterol; amino acid requirements in humans, important pathways, reactions and relevance to human metabolism. Prerequisite: NTR 521. WI (3-0-3)

NTR 524 Advanced Vitamin Metabolism. Lectures and readings describe current consensus on the functional aspects of these micronutrients in man. Permission of instructor required. Prerequisite: NTR 522. (2-0-2)

NTR 525 Advanced Mineral and Vitamin Metabolism. Lectures and readings describe current consensus on the

functional aspects of these nutrients in man. Permission of instructor required. Prerequisite: NTR 522. (2-0-2)

NTR 527 Advanced Protein Metabolism. Lectures and readings review mammalian protein metabolism in liver, muscle, intestine, and brain and emphasize metabolic changes in response to various diets, infection, and certain disease states. Permission of instructor required. Prerequisite: NTR 522. (3-0-3)

NTR 528 Advanced Carbohydrate and Lipid Metabolism. Lectures emphasize the role of diet composition and starvation in the regulation of carbohydrate and lipid metabolism. Permission of instructor required. Prerequisite: NTR 522. (4-0-4)

NTR 534 Nutrition in Critical Care. Current rationale and techniques for assessing patient requirements and monitoring nutritional therapy in nonvolitionally fed patients. The latter part of the course reviews formulae used in the metabolic support of patients with liver, renal or lung disease. Special attention is given to metabolic complications associated with intravenous feeding. FA (0-15-3)

NTR 541, 542 Interrelationships of Nutrition and Disease I, II. Students will describe the pathophysiology, diagnosis and treatment of those disorders that adversely affect human nutrition. Special emphasis will be places on analysis of current theories. Permission of instructor required. Prerequisite: NTR 522. SP SU (4-0-4) (4-0-4)

NTR 543 Physiological Basis of Exercise and Nutrition. An examination of the physiological and metabolic adaptations to exercise and physical conditioning. Special attention is given to the nutritional needs of the human body in response to specific types of exercise. Prerequisite: biochemistry, advanced nutrition, physiology, or permission of instructor. FA (4-0-4)

NTR 544 Nutrition in Sports. Analysis of literature pertaining to nutrition, exercise, and the effect on various population subgroups. The practical aspects of nutrition management for elite, scholastic, collegiate, and recreational athletes will be examined. Prerequisite: NTR 543 or permission of instructor. WI (2-0-2)

NTR 551 Nutrition in the Life Cycle: Conception to Age One. A study of the nutritional requirements of the human female through the childbearing cycle as well as the fetus and newborn child through the first birthday. Special attention will be paid to human lactation and breastfeeding. WI (2-0-2)

NTR 565, 566 Seminar I, II. Students and faculty will present topics/research related to food, nutrition and food service management. All departmental research is presented in this forum. FA WI (1-0-v) (1-0-v)

NTR 572 Nutrition Communication. Theoretical models from a variety of disciplines will be introduced as potential frameworks for nutrition education. Students will explore strategies for oral and written communications and will learn techniques that may be applied in any setting with

any audience. Individualized application of the theories, strategies and techniques will be emphasized. WI (3-0-3)

NTR 574 Management in Nutrition Care Systems. Emphasis is on the delivery of optimum nutrition care within the cost effective parameters of an evolutionary health care system. WI (3-0-3)

NTR 582 Introduction to Research. An orientation to research designs and methodologies; collection and analysis of data for specified objectives. Prerequisite: PVM 541. WI (3-0-3)

NTR 583 Food Systems Operational Analysis. A study of significant food systems management issues in the healthcare industry. FA (1-0-1)

NTR 585 Applied Nutrition Research. Under faculty supervision, the student will conduct a research project and prepare a written research report which includes a statement of the problem, review of the literature, research methodologies, findings, discussion, and conclusions. Project approval by both the faculty preceptor and the course director is required six weeks prior to enrollment. For Track II students only. May be repeated for a total of six credits. Prerequisite: HCE 581. (1 to 6)

NTR 586 Applied Nutrition Research I. Under faculty supervision, students will prepare a research proposal. Emphasis will be on a review of current research literature, appropriate research design and methodology. Prerequisite: NTR 582. SP (v-0-2)

NTR 587 Applied Nutrition Research II. Students present research proposals and upon faculty approval, initiate data collection. Emphasis will continue on research design, data analysis and scientific integrity. Prerequisite: NTR 586. SU (2)

NTR 588 Applied Nutrition Research III. Students complete research data analysis and prepare final research paper. Emphasis continues on data analysis, scientific integrity, plus skills in scientific writing. Prerequisite: NTR 587. FA (2)

NTR 590 Special Topics. In depth examination of timely professional issues. Content varies according to topic choice for the quarter with presentations from faculty and guest speakers. FA (1-0-v)

NTR 592 Individualized Clinical Practice. For students who wish advanced experience in one area of clinical nutrition practice. Limited to clinical nutrition students. (0-v-v)

NTR 599 Independent Readings. The student completes a literature search and written paper on a topic related to nutrition that will complement his/her learning goals. Arrangements for study must be made with the preceptor prior to registration. (0-0-v)

OBSTETRICS AND GYNECOLOGY

OBG 601 Core Clerkship in Obstetrics and Gynecology. A study of the female reproductive tract with emphasis on routine gynecologic health care maintenance and patient education. Identification and management of high-risk pregnancy, infertility and other endocrinopathies, gynecologic oncology, family planning, psychosomatic disorders and normal psychological changes in obstetrics and gynecology as well as gynecologic surgery are some of the areas covered in detail. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Nye.

OBG 621 Advanced Obstetrics. Emphasis is on the ideal support of the normal pregnant patient. Specific areas covered are preparation for childbirth (Lamaze, etc.), psychology of childbirth, alternative methods of childbirth, Leboyer method, and patient-infant bonding. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Meserow.

OBG 631 Maternal Fetal Medicine/High Risk Obstetrics. Identification and management of high risk pregnancy. Ultrasonography, amniocentesis, medical and surgical complications of pregnancy, and operative obstetrics are some of the specific topics dealt with in detail. Students participate in ante-partum management of hospitalized and ambulatory pregnant patients with high risk conditions. Additional exposure to intra-partum problems is obtained through daily clinical teaching rounds and through follow-up of high-risk ante-partum patients as they go through labor and delivery. Special experiences and involvement in genetic counseling, prenatal diagnosis and obstetric ultrasound are also available. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Strassner.

OBG 661 Gynecologic Oncology. The diagnosis, management and follow-up of female reproductive tract tumors. Students are introduced to the use of diagnostic procedures such as colposcopy, laparoscopy, and biopsies, as well as treatment with chemotherapy and cancer surgery. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Yordan.

OBG 666 Ambulatory/Reproductive Health Care. Students are provided additional clinical experience in family planning practices. Students interview and examine ambulatory patients, prescribe methods of family planning and conduct follow-up under supervision of the staff. There is a limited time in the main operating room doing minor and major gynecologic procedures. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Nye.

OBG 667 Reproductive Endocrinology and Infertility. Diagnostic evaluation and therapeutic management of couples with infertility problems and women with gynecologic endocrine disorders are studied. Students participate in routine diagnostic studies, such as ovulation timing, postcoital tests, and endocrine evaluation and are introduced to the use of diagnostic and therapeutic procedures such as hysterosalpingography, ultrasonography, laparoscopy, and hydrotubation. Students scrub on surgical reconstructive procedures involving the female reproductive system, participate in the activities of the in vitro fertilization program and may obtain laboratory

experience with other procedures. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Radwanska.

OCCUPATIONAL THERAPY

OCC 461 Health and Development. The nature of health, illness and disability and their effect on the fulfillment of developmental roles and functions throughout the life span. FA (3-0-3) Opacich.

OCC 463 Principles of Movement. The biomechanics of movement and the application of neuromusculoskeletal function to the performance of daily living tasks and activities are emphasized. FA (2-2-3)

OCC 465 Group Dynamics. Didactic and experiential activities designed to familiarize the student with basic principles underlying group process and group behavior and clinical application of these principles in occupational therapy are studied. Prerequisites: OCC 501, PSY 501. WI (2-2-3) Weinstein.

OCC 501 Activity Theory and Skills. The focus is on teaching, analysis and therapeutic application of activities. Analysis, history and skills in areas of play/leisure, self-care, homemaking, work and development of skills in performing selected activities are studied in depth. Theoretical constructs which provide the basis for occupational therapy practice are explored. FA (2-4-4) Silerzio, Staff.

OCC 502 Occupational Therapy History and Philosophy. An overview of the historical foundations of occupational therapy as they relate to the frames of reference and theoretical perspectives upon which the field is based. Prerequisites: OCC 461, 501.[e] WI (3-0-3) Adams.

OCC 506 Medical Conditions Seminar. A presentation and discussion of selected medical, surgical, neurological and orthopedic conditions with emphasis on their etiology, treatment and prognosis. SP (3-0-3) Opacich.

OCC 510 Special Topics in Geriatrics Seminar. Seminars that address clinical and nonclinical issues that are specific to the role of occupational therapy with geriatric populations in a changing society. SP (3-0-3) Nolinske.

OCC 511 Occupational Therapy Intervention I. Students learn theories and conceptual models for intervention in the disease processes of psychosocial disorders which can be applied in medical, educational, and community settings. Simulated and actual patient management issues relative to psychosocial disorders are presented and discussed. Includes preclinical experiences in psychiatric settings. Prerequisites: OCC 465, 502, 503. SP (v-v-5) Skinner.

OCC 512 Occupational Therapy Intervention II. Theories and conceptual models of intervention are presented, based on biomedical principles and approaches to occupational therapy evaluation and on the treatment of individuals with nervous system disorders. Information is reviewed chronologically across the life span for both acute

and chronic conditions. Includes preclinical experience in selected settings. Prerequisites: OCC 463, 511, 541, NEU 501. FA (v-v-5) Nolinke.

OCC 513 Occupational Therapy Intervention III. Theories and conceptual models of intervention are presented, based on biomedical principles and approaches of occupational therapy evaluation and on the treatment of physically disabled individuals. Information is reviewed chronologically across the life span for both acute and chronic conditions. Includes preclinical experiences in selected settings. Prerequisite: OCC 512. FA (v-v-6) Nolinke.

OCC 516 Interventions I Fieldwork. Supervised part-time field experience related to the theory and application of occupational therapy in the area of psychosocial dysfunction. Corequisite: OCC 511. SP (v-v-1) Skinner.

OCC 517 Interventions II Fieldwork. Supervised part-time field experience related to the theory and application of occupational therapy in the areas of neurodevelopmental and biochemical dysfunction. Corequisite: OCC 512. SU (v-v-1) Nolinke.

OCC 518 Interventions III Fieldwork. Supervised part-time field experience related to the theory and application of occupational therapy in the areas of neurodevelopmental and biochemical dysfunction. Corequisite: OCC 513. FA (v-v-1)

OCC 521 Etiology of Occupation. A critical review of theories and practices of occupational therapy with projection of future models of practice. Includes examination of scientific knowledge, models of health care, sociological features of occupational therapy practice, and the study of human occupation and its description in illness. Prerequisite: OCC 502. SU (4-0-4) Adams.

OCC 531 Principles and Methods of Education. An exploration of the use of behavioral objectives, taxonomical levels of learning, and the application of the theories of classical and contemporary theories. A variety of media and techniques to enhance clinical and classroom teaching will be emphasized. SU (2-0-2) Hughes.

OCC 533 Principles and Methods of Supervision. Introduction to the supervisory process based on principles related to education, interpersonal processes, and management. Prerequisite: OCC 531. Corequisite: OCC 545. FA (3-0-3) Hughes.

OCC 535 Issues and Perspectives in the Treatment of Children. A multi-disciplinary view of physiological, emotional and environmental phenomena affecting children. Stresses clarification of occupational therapy in the prevention or remediation of dysfunction. Prerequisite: OCC 461. WI (3-0-3) Opacich.

OCC 541 Tests and Measurements in Occupational Therapy. Administration, scoring, interpretation, and reporting of selected tests and informal assessments useful in an occupational therapy evaluation of clients of varying ages and disability. Prerequisite: OCC 463, 502. SP (2-4-4) Opacich.

OCC 545 Occupational Therapy Management in the Health Care System. Exploration and involvement in administrative activities related to effective delivery of occupational therapy services; includes budgeting, personnel policies and long-and short-term program planning. Prerequisite: organizational behavior course, OCC 521. FA (3-0-3) Miller.

OCC 582 Application of Computer Technology in Treatment, Management, and Research. An introduction to the computer in which students will apply their computer knowledge to problems and management in clinical areas related to patient treatment, report writing, file/data management, and data analysis. SU (v-v-3) Harris.

OCC 585 Research Proposal. Completion of a departmental proposal prior to the implementation of a research project. Prerequisite: OCC 581. FA (0-v-3) Hughes, Staff.

OCC 590 Advanced Topics Seminar. Seminars which address clinical entities in nontraditional areas of practice and concern of occupational therapy. Prerequisite: Occupational Therapy 595. SU (6-0-6) Hughes, Opacich, Nolinke.

OCC 598 Thesis. Completion of a departmental project, based on the research proposal, for a master's degree thesis relevant to occupational therapy. Prerequisite: OCC 585. SP SU (0-v-3) Hughes, Staff.

OCC 599 Independent Study. Creative project designed by the student and supervised by faculty. (v-v-v)

PATHOLOGY

PTH 501 General Pathology. The general concepts of pathology are studied, with an introduction to degeneration, inflammation, immune response, neoplasia and metabolic and toxic pathological processes. Lectures and seminar groups are accompanied by laboratory work in the microscopic anatomy of pathological changes. Prerequisites: ANA 451, 472. FA [122 hours] Templeton.

PTH 502 Pathology II. A basic systemized study of human diseases affecting the various organ systems will be presented in lectures, seminars, and laboratory sessions. Concepts covered in PTH 501 will be stressed and correlated with the special pathology of organ systems and their functional and structural alterations. Prerequisite: PTH 501. WI SP [45 hours] Haber.

PTH 503 Pathology III. The basic fundamentals of laboratory testing will be presented with emphasis placed on interpretation of tests and the appropriateness of test ordering. Students learn to draw blood and will be expected to perform and interpret a few simple, but diagnostically important, laboratory tests such as urinalysis, hemacrit, and blood smear. No examinations are given in this course, but attendance is required. PTH 502. SP [45 hours] Haber.

PTH 601 Pathology Clerkship. The primary emphasis is on techniques and procedures used in autopsy pathology performed under the direction of a departmental faculty

Course Descriptions

member. In addition, there is active participation in surgical pathology and departmental conferences. A review of systemic pathology and cytology is provided. Available as a four-week elective only by special arrangement. Prerequisite: MED 601. FA WI SP SU [8 weeks] Dainauskas.

PATHOPHYSIOLOGY

PPH 522 Biology of Cancer. Basic concepts of cell biology and biochemistry are introduced with application to the tumor cell. Topics include: mechanisms of carcinogenesis and metastasis, basic and tumor immunology, nutritional aspects of cancer, and hematology. Scientific principles for immunomodulation, radiobiology, and the effect of chemical agents on cell proliferation is included. FA (4-0-4)

PPH 523 Biological Basis of Clinical Therapeutics I. Emphasis is on the pathophysiological basis and meaning of disease processes. The meaning of assessments and therapies related to body regulation of internal cellular environment is studied. Topics include: cells, immune system, muscle, endocrine control of metabolism, reproduction, and the gastrointestinal system. FA (2-0-2)

PPH 524 Biological Basis of Clinical Therapeutics II. Emphasis is on the pathophysiological basis of disease processes. The meaning of assessments and therapies related to body regulation of internal cellular environment is studied. Topics include: pulmonary, cardiovascular, and renal systems, and fluids and electrolytes. WI (2-0-2)

PEDIATRICS

PED 601 Core Clerkship in Pediatrics. The principles and practice of care from birth through adolescence are studied by direct patient contact. The primary objective is to provide an opportunity for students to become proficient in the clinical basis of pediatric diagnosis and therapy. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Soglin.

PED 603 Introduction to Newborn Medicine. An introduction to the care of newborn infants and mothers, with emphasis on the normal sequence of events in the birth-recovery period, adaptation of baby and mother during the postpartum period, and care of the most common complications occurring at this age. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Bigger.

PED 604 Adolescent and Young Adult Medicine. The student is provided with direct experience in the care of inpatients and outpatients. The student is provided experience with disease processes unique to adolescents or manifested differently in this age group as compared to other age groups. Prerequisite: PED 601 or MED 601. FA WI SP SU [4-8 weeks] Strokosch.

PED 608 Behavioral Pediatrics. Students work in both the general pediatric and behavioral consultative setting to improve their understanding of children and families and developing their skills in the area of behavioral pediatrics under direct supervision of the course director. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Richtsmeier.

PED 610 Pediatric Subinternship. An inpatient experience on one of the general units. The subintern will function in a capacity similar to an intern, with supervision by a senior resident and faculty physician. Students are expected to take call every fourth night. Prerequisite: PED 601, fourth year standing. FA WI SP SU [4 weeks] Soglin.

PED 611 Pediatric Cardiology. Both ambulatory and inpatient experience are obtained in caring for children with heart disease. Correlation of x-ray and electrocardiographic and cardiac catheterization data with physical findings is intensively studied. The student participates in intraoperative and postoperative surgical management. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Bucheleres.

PED 615 Chronic Diseases in Children. Based at Shriner's Hospital for Crippled Children, students will participate in an active inpatient and outpatient program which provides referral services to children with musculoskeletal disorders, neural tube defects and other chronic diseases. Prerequisite: PED 601. FA WI SP SU [4 weeks] Vogel.

PED 621 Pediatric Endocrinology. All aspects of pediatric endocrinology are covered with a problem-oriented approach but particular emphasis is placed on normal and abnormal aspects of growth and pubertal development. The aim is to highlight the role of the primary care provider in the initial evaluation of the pediatric patient with a suspected endocrine disorder and to provide the student with an introduction to specialized diagnostic endocrine testing and management of the endocrine patient. Prerequisite: PED 601. FA WI SP SU [4 weeks] Kreiter.

PED 622 Emergency Pediatrics. At least 30-40 hours per week is involved in supervised direct patient evaluation including daily attendance in the pediatric emergency room and night call responsibility. The student will be required to maintain a log of patients seen and procedures performed, to attend teaching conferences given by a pediatrician, and to attend the didactic lecture on a suitable topic at one of the emergency pediatric conferences. Prerequisite: PED 601. FA WI SP SU [4 weeks] Kramer.

PED 624 Pediatric Critical Care. Emergency medicine is the essence of this course. There is an emphasis on acquiring a wide knowledge of the latest remedies, resourcefulness, and a good command of emergency procedures and equipment. Prerequisite: PED 601 and fourth year status. FA WI SP SU [4-8 weeks] Boyer.

PED 626 Pediatric Nephrology. Students gain experience in the care of children with renal problems in hospitalized and ambulatory patients. Emphasis will be on active consulting service in regard to normal and abnormal renal functions, electrolyte imbalances, proteinuria, hematuria, hypertension, urinary tract infection and developmental diseases of the kidney and urinary tract. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Heilicher.

PED 631 Pediatric Radiology. Students observe radiologic procedures and participate in analyses, reviews, and general radiology conferences. Analysis involves assessment of appropriateness of an examination, detection of pertinent findings, interpretation of findings, and synthesis of interpretation and clinical presentation into reasonable diagnosis. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Han.

PED 632 GI/Nutrition. Emphasis will be on understanding the pathophysiology of, and basic approach to, common clinical problems. The nutrition component will include fundamentals of enteral and total parenteral nutritional management. Students will participate in all outpatient and inpatient care, including endoscopic and other procedures. In addition to a core set of didactic materials and discussions students will be expected to perform a literature review of one or more topics. Prerequisite: PED 601. FA WI SP SU [4 weeks, possible 2 weeks of GI or 2 weeks of Nutrition] Sandler.

PED 641 Pediatric Allergy/Clinical Immunology. The clinical approach to the problems of allergy and immunology in children and adults is studied. Special studies of acute and chronic respiratory tract and dermatologic conditions are emphasized. Patients with circulating and cellular antibody disorders are investigated. The inpatient and outpatient facilities of the Medical Center are used. Prerequisite: PED 601. FA WI SP SU [4-12 weeks] A. Gewurz.

PED 642 Pediatric Hematology/Oncology. This course provides an introduction to the care of children with a variety of hematologic disorders, or malignancies of childhood. Students will attend consultations with radiologists, pathologists, and surgeons involved in the diagnosis of malignant diseases. Daily ward rounds for inpatients are required as well as outpatient clinics which are held three half-days a week. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Green.

PED 646 Pediatric Infectious Diseases. The focus is on clinical and laboratory evaluation of pediatric infections. Correct use of laboratory facilities is stressed. Pathophysiology of infectious diseases, differential diagnosis, and antibiotic use are discussed on daily ward rounds and weekly conferences. Prerequisite: PED 601. FA WI SP SU [4 weeks] Boyer.

PED 651 Pediatric Neurology. An advanced clinical experience focusing on neurological problems in the pediatric population. Prerequisite: PED 601. FA WI SP SU [4weeks] Heydemann.

PHARMACOLOGY

PHR 301 Introduction to Pharmacology. Basic concepts in pharmacology focusing on drug actions, reactions, and interaction. Corequisite: NUR 342 - 344, 361 or equivalent. (3-0-3)

PHR 501 Medical Pharmacology I. Introduction to the physiochemical factors governing drug receptor actions and the major areas of autonomic, neuropharmacology and

psychopharmacology. Prerequisites: BCH 472, NEU 451, PHY 452. FA (4-1-4) [53 hours] Moon.

PHR 502 Medical Pharmacology II. Topics include anesthetic agents, analgesics, sedatives and hypnotics, cardiovascular and respiratory agents, diuretics, hypoglycemic agents, drugs acting on the blood and blood-forming organs and toxicology. Prerequisite: PHR 501. WI (4-1-4) [37 hours] Moon.

PHR 503 Medical Pharmacology III. The pharmacology of antibiotics and cancer chemotherapeutic agents. Prerequisite: PHR 502. SP (2-0-2) [21 hours] Moon.

PHR 521 Laboratory Instrumentation. The course covers the principles and applications of experimental equipment. Instrumentation will include: ultraviolet and visible spectrophotometry, spectrophotofluorometry, thin-layer chromatography, column chromatography, high pressure liquid chromatography, atomic absorption, liquid scintillation spectrometry, isotope use and handling, pH adjustment, sample weighing, melting point determination, hematocrit determination, centrifugation, and glassware cleaning. SP (0-6-3) Parkhurst.

PHR 529 Graduate Nursing Pharmacology. Research and clinical applications of autonomic pharmacology and the basic principles of pharmacology. Prerequisite: PHR 301 WI (3-0-3) Prancan, Nora.

PHR 541 Pharmacology. Drug interaction with body tissues, including absorption, distribution, metabolism and excretion is studied. Biochemical and physiologic mechanisms of drug action are discussed. WI (2-0-2) Nora.

PHR 542 Pharmacotherapeutics. The use of drugs in the diagnosis, prevention, and treatment of disease is presented. SP (1 to 6 credits) Nora.

PHR 551 Pharmacokinetics. Basic principles of the dynamics of absorption, distribution, and elimination under normal conditions and of selected disease states are presented. Prerequisite: PHR 503. WI (3-0-3) Nora, Parkhurst.

PHR 590 Special Topics in Pharmacology. The course is designed to allow the student flexibility in independently pursuing a particular area of interest. May be taken for one or more terms. (v-v-v) Staff.

PHR 591 Advanced Topics in Pharmacology. A series of faculty and student presentations and discussions addressing any advanced topic related to pharmacology. FA WI SP (2-0-2) Prancan.

PHR 598 Research in Pharmacology. By special arrangement. (v) Prancan.

PHR 599 Independent Study. (v)

PHR 611 Neuropharmacology I. A seminar course presenting both preclinical and clinical aspects of drugs

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used in the treatment of neurologic and psychiatric disorders. Prerequisite: PHR 503. FA (3-0-3) Klawans.

PHR 612 Neuropharmacology II. Continuation of PHR 611. WI (3-0-3) Klawans.

PHR 613 Neuropharmacology III. Continuation of PHR 612. SP (3-0-3) Klawans.

PHR 622 Experimental Models in Pharmacology. A laboratory course concerned with the techniques involved in preparing experimental animal and tissue models for research. SP (0-8-4) Prancan.

PHR 631 Clinical Pharmacology and Therapeutics. A study of the integration of clinical work with therapeutic aspects of pharmacology including discussion of the pharmacology, clinical pharmacology, therapeutics and clinical applications for major drug groups. Prerequisite: PHR 503. (4-0-4) MacLeod.

PHR 691 Pharmacology Seminar. FA WI SP (1-0-1) Nora.

PHR 699 Thesis Research. (v)

PHYSIOLOGY

PHY 451 Physiology I. A comprehensive physiology course which deals with essentially all of the major organ systems except the CNS. Concept formation and problem solving are stressed. Lectures are supplemented by small group discussions and laboratory exercises. Students are expected to discuss assigned study questions in the group discussions. Laboratory exercises are divided between conventional experiments and computer simulations of physiological systems. FA (4-2-5) [60 hours] Rovick.

PHY 452 Physiology II. Continuation of PHY451. Prerequisite: PHY 451. WI (5-2-5) [63 hours] Rovick.

PHY 502 Introductory Membrane Biophysics. Study of fundamental processes involved in movement of ions across membranes, excitability in nerve and muscle, equivalent circuit analysis, artificial membrane systems, structure of membranes, and active transport processes. (4-0-4) Cohen.

PHY 503 Physiology of Striated Muscle. Topics include fundamentals of excitation-contraction coupling, mechanics of muscle, equivalent circuit analysis, muscle biochemistry, and developmental aspects of nerve and muscle. (4-0-4) Rios.

PHY 504 Neurophysiology. This course presents a conceptual approach to the understanding of CNS functions. Discussion includes normal function and selected areas of pathology and current research. A one-hour student presentation is required. SP (2-0-2) Zimmerman.

PHY 514 Functional Neurophysiology. An examination of physiology of neurons and glia, synaptic processes, sensory receptor physiology, spinal cord, cerebellum and motor control, peripheral mechanisms in sensory systems, and higher functions of the nervous system. Relevant

neuroanatomical concepts will be included. SP (4-2-4) Staff.

PHY 523 Circuit Theory and Practical Design. A tutorial laboratory course designed to acquaint the student with the principles of design and construction of various electronic equipment commonly encountered in modern physiology. (3-2-4) Guiffre.

PHY 524 Linear Differential Equations and Transform Methods. Study of first and higher order linear equation, linear algebra techniques, finite difference equations, Fourier series and transforms, Laplace transforms, and applications to solution of differential equations. (4-0-4) Eisenberg.

PHY 525 Linear Systems Analysis. Topics include block diagrams, feedback, frequency domain analysis, noise and its analysis, and partial differential equations and their solution. Prerequisite: PHY524. (4-0-4) Eisenberg.

PHY 531, 532 Physiological Modeling I, II. This course covers control theory, the human motor system, and feedback interactions in the human motor system. SU FA (4-0-4) (4-0-4) Gottlieb.

PHY 555 Physiology of Cellular Homeostasis. Integrated physiological content related to cellular homeostasis/viability in humans. Focus is on those selected aspects of cardiovascular, nervous, muscle, hormonal and reproduction, and gastrointestinal systems that account for regulation of cellular fluid, electrolyte and energy/thermal balances. FA (3-0-3)

PHY 556 Physiology of Cellular Homeostasis II. Integrated physiological content related to cellular homeostasis/viability in humans is presented. Focus is on those selected aspects of pulmonary, cardiovascular and renal systems that account for regulation of cellular fluid, electrolyte and energy/thermal balances. WI (3-0-3)

PHY 590 Special Topics in Physiology. An advanced course dealing with selected topics in physiology. The particular subjects vary from year to year. (v)

PHY 598 Introduction to Research. A tutorial course designed to familiarize students with the literature and techniques applicable to modern physiological research. FA WI SP SU (v-v-v)

PHY 640 Applied Electrophysiology. An advanced laboratory course introducing students to the basic techniques of modern electrophysiology. Prerequisites: PHY 502, 503, 523. (3-6-6) Staff.

PHY 641 Molecular Mechanisms in Control of Ion Permeability. An advanced course dealing with special topics in the molecular control of excitability and laboratory instruction in voltage clamp techniques. Offered Alt. years by arrangement. Prerequisite: PHY 502. (4-0-4) Cohen, Quandt.

PHY 651 Advanced Topics in Muscle Physiology. Topics include equivalent circuit of skeletal muscle, problems in excitation-contraction coupling, and molecular

events in the generation of mechanical force. Prerequisite: PHY 503. (4-0-4) Rios, Eisenberg.

PHY 653 Problems in Synaptic Physiology. A detailed review of current experimental and theoretical problems in transmitter release and activation of postsynaptic receptors. Prerequisites: PHY 451, 503, 514. (4-0-4) Niles.

PHY 655 Sensory Neurophysiology. An advanced tutorial dealing with the function of sensory systems and information processing. Prerequisite: PHY 514. (4-0-4) Hoepfner.

PHY 690 Research Topics in Physiology. With a member of the staff, the student participates in a laboratory-based experience in an area of current research. The level of participation depends on the student's background and will include examination of the literature, a review of the topics being investigated, and opportunities to participate in experimental work. In addition to work in the laboratories, independent experimental or bibliographic projects may be undertaken with the approval of a faculty member. A report is prepared describing the work attempted and accomplished. Prerequisite: PHY 452. SP SU [8 weeks] Staff.

PHY 699 Thesis Research. Postcandidacy research by arrangement with staff. FA WI SP SU (v-v-v)

PERFUSION TECHNOLOGY

PRF 301 Introduction to Perfusion Technology. An introduction for the student to the operating room environment. Primary focus will be on sterile technique from scrubbing and gowning and gloving to the aseptic handling of fluids and sterile equipment. Also a general orientation to other departments and locations that interact with the field of perfusion technology, such as the cardiac catheterization lab, intensive care units, pharmacy and other laboratories. Lectures and group discussions will also cover personnel interaction, ethical and professional behavior, as well as sterile supplies and inventories. (2-0-2) Djuric.

PRF 302 Pathophysiology of Cardiopulmonary Bypass I. The focus will be on how cardiopulmonary bypass directly affects various organ systems. This first in a series will cover the heart and lungs, beginning with embryology to congenital defects and through acquired disease. Attention will be given to understanding cardiac dynamics in normal and disease states as well as interpretation of ECG's. Pulmonary function and gas exchange principles will be discussed. (5-0-5) Djuric, DeLaria.

PRF 303 Pathophysiology of Cardiopulmonary Bypass II. This second course will focus on other organ systems, such as renal, vascular, central nervous and examine how they are affected by cardiopulmonary bypass. Lectures will also cover hematology and hemostasis. (5-0-5) Djuric, DeLaria.

PRF 311, 312, 313 Junior Seminar I, II, III. These informal discussions will center around current and

historical readings in perfusion related journals. Students will present assigned topics for discussion. (2) (2) (2) Djuric, Lisk.

PRF 320 Bioinstrumentation. Through readings, lectures and laboratory demonstrations, the students will learn the safe and proper use of monitoring and other electrical equipment related to perfusion technology. (3) Djuric, Staff.

PRF 401 Perfusion Technology I. This course will cover the mechanics of perfusion technology from tubing and connectors for constructing circuits to cannula selection reservoirs, filters and oxygenators. Lectures and discussions will cover how this equipment works and how it can be used, while laboratory time will provide hands-on experience. Equipment related to perfusion technology, such as Cell Savers, intra-aortic balloon pumps, hemoconcentrators, in-line monitoring devices, and others will be discussed. (3) Lisk.

PRF 402 Perfusion Technology II. A continuation of PRF 401 with the addition of concepts in pediatric perfusion. Topics will include equipment selection, perfusion considerations based on underlying defects and physiological differences that affect perfusion. (3) Djuric.

PRF 403 Perfusion Technology III. This course will discuss alternative uses for perfusion concepts, such as L/RVADs, artificial hearts, ECMO/ECCOR, isolated limb/organ perfusion and other new uses for the extracorporeal circuit. The expanding role of the perfusionist will also be discussed. (3) Djuric.

PRF 411, 412, Senior Seminar I, II. This will be a continuation of the Junior Seminar with the addition of special research projects and case discussions. (2) (2) (2) Djuric, Lisk.

PRF 431 Clinical Experience I. This summer session course will serve as the student's introduction to his/her clinical role as a perfusionist focusing on the role of first assistant. Duties include equipment selection, assisting during set-up and clean-up, charting and general interaction with other personnel during open heart surgery and related procedures. (8) Djuric, Lisk.

PRF 432, 433, 434 Clinical Experience II, III, IV. Under direct supervision by a Certified Clinical Perfusionist the student will gradually move up from a first assistant to a primary perfusionist with sole responsibility for 50 adult procedures and 10 pediatric procedures. The students will be constantly evaluated by their clinical supervisors. These written evaluations will be discussed with the program director on a weekly individual basis in order to insure steady competent progress. (8) (8) (8) Djuric, Lisk, Reisinger, Potter, Staff.

PREVENTIVE MEDICINE

PVM 452 Preventive Medicine I: Epidemiology and Biostatistics. A basic introduction for the medical students to the principles and methods of epidemiology and biostatistics. Topics include the following: the calculation of rates; incidence and prevalence; sensitivity and specificity

Course Descriptions

in screening; calculation of risk and its significance; study designs; comparative analysis; sampling; tests of significance and correlations. At the completion of the course the student should be able to critically appraise articles in the clinical research journals. SP [12 hours] Norusis.

PVM 453 Preventive Medicine II: Community Health.

The medical student is introduced to the concept of community health by visiting some public health and community-based primary care programs operating in the Chicago areas. Three days are devoted to field trip activities that illustrate the major concepts and techniques of community medicine. All students spend one day visiting patients with home health nursing staff. SP [3 days field experience; 18 hours] Eckenfels.

PVM 503 Preventive Medicine III: Social Issues in Preventive Medicine.

This overview course provides the medical student with current factual information about disease mortality and morbidity rates; changing demographic and epidemiological trends and specific elements of the health care system such as manpower, facilities, services, utilization patterns and costs and financing. Additionally, it offers some perspectives on the changing health of the nation with special attention to disease prevention and health promotion as they apply to meeting the Surgeon General's goals for the 1990's. FA [16 hours] Eckenfels.

PVM 504 Preventive Medicine IV: Study Groups in Preventive Medicine.

Study groups on special topics in preventive medicine and community health (e.g., health and poverty, preventive nutrition, occupational health) with assigned tutors are arranged so medical students have an opportunity to study a topic of their interest in depth. Classroom size is kept small (10-15) to promote open discussion. WI [8 hours] Assigned tutors.

PVM 541 Biostatistics I. A basic introduction to the use of statistics in the health sciences. Topics covered include: descriptive statistics, probability, sampling, estimation, t- and Z-tests, chi-square tests, one-way analysis of variance, and nonparametric statistics. Students will do some statistical computations on the computer. FA (4-0-4) Norusis, Shott.

PVM 542 Biostatistics II. An extensive introduction to regression, two-way analysis of variance, and analysis of covariance. Regression topics covered include: dummy variable, transformations, stepwise regression, and residual analysis. Most of the analysis will be done using computer programs. Prerequisite: PVM 541. WI (3-0-3) Norusis, Shott.

PVM 543 Biostatistics III. An introduction to multivariate statistical techniques, including factor analysis, discriminant analysis, multivariate analysis of variance, loglinear analysis, and cluster analysis. Extensive use will be made of computer programs. Prerequisite: PVM 542. SP (3-0-3) Norusis, Shott.

PVM 599 Independent Study. Advanced topics by arrangement with instructor. (v)

PVM 601 Primary Care. Ambulatory care in a physician's office is the basis for this clerkship. Emphasis is on preventive measures and follow-up care. By individual arrangement, experience is available in a variety of settings, such as group practice, inner city clinics, or rural practice. Experience in foreign countries can also be arranged. Prerequisite: CCS 502. FA WI SP SU [4-12 weeks] Schoenberger.

PVM 603 Occupational Medicine. This experience provides a combination of didactic and practical work in approaching the problems of health maintenance and environmental hazards in diverse industrial settings. Prerequisite: MED 601. FA WI SP SU [8 weeks] Kassriel.

PVM 604 Field Experience in Epidemiology.

Emphasis is placed on the collection and analysis of data obtained in epidemiologic studies. The student may select a project and is expected to become familiar with field epidemiologic techniques and tools, including questionnaire design and interviewing. Primary focus is on studies of cardiovascular disease, with special emphasis on the control of hypertension and prevention of cardiac disease. Prerequisite: CCS 502. FA WI SP SU [12 weeks] Schoenberger.

PVM 605 Research Studies in Health Care Delivery.

Under supervision, the student undertakes research on problems in health care delivery. The models available in the Medical Center are utilized primarily, but other systems may be studied by arrangement. Such areas as health evaluation programs, the use of paramedical personnel, medical audit and emergency room care are available. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Schoenberger.

PSYCHIATRY

PSY 501 Introduction to Psychopathology. A study of the range of psychopathology that will be manifested in clinical situations. By reviewing diagnostic criteria and by studying etiological factors underlying various forms of psychopathology that range from disturbances in cellular and neurotransmitter function through psychological and social stresses, students develop a basic understanding of common psychiatric conditions. Prerequisite: Behavioral Science 453. FA (3) [33 hours] Schrift.

PSY 601 Core Clerkship in Psychiatry. Basic clinical and didactic exposure to the major psychiatric disorders focusing on their diagnosis and management. Emphasis is placed on aspects of psychiatry relevant to the primary practitioner with a holistic approach to patient care recognizing the significant biological, psychological, and social/environmental factors contributing to the patient's illness. Systems concepts of care are presented in an integrated manner through graded, intensive, clinical experiences. Inpatient, settings are used for assignment of patient responsibility. Prerequisite: CCS 502. FA WI SP SU [6 weeks] Schrift.

PSY 602 Psychosomatic Medicine. The relationship between internal and external stress and the development of physical symptomatology as well as therapeutic interventions are studied. Adults and children hospitalized

on medical, surgical, obstetric, or pediatric services are studied with supervised diagnostic evaluation and continuing management. The role of the milieu--home, community, and hospital--is emphasized. Special work is done with dialysis patients, transplant patients, patients with malignancies, and those undergoing intensive care. Prerequisite: PSY 601. FA WI SP SU [4-6 weeks] S. Cavanaugh, Chor.

PSY 603 Child Psychiatry. Students will be assigned specific children to follow under the supervision of the attending child psychiatrist and will participate in treatment groups and team management. Students will work with the treatment teams of the child psychiatric inpatient unit, the day school and partial hospitalization program, and consult-liaison with pediatrics and outpatient services. Prerequisite: PSY 601. FA WI SP SU [4-6 weeks] Pozanski.

PSY 604 Adult Psychiatry. The objective is to increase the student's knowledge of various psychiatric disorders and to improve knowledge and skills in drug therapy, individual psychotherapy, family therapy and group therapy. Emphasis is placed on crisis management and brief therapy in inpatient settings. Prerequisite: PSY 601. FA WI SP SU [4-8 weeks] Bagri.

PSY 605 Geriatric Psychiatry. The focus is to increase the amount of experience in treating elderly patients with psychiatric presentations superimposed on medical problems, to improve psychiatric diagnostic skills and uses of psychotherapy and pharmacotherapy with elderly patients, and to learn more about psychological changes that accompany the aging process. Also students will become familiar with normal and abnormal states and processes with the elderly by means of: readings in the field of Geriatric Psychiatry, direct treatment of select patients with supervision by attending psychiatrists, fellows, and residents on rotation. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Ripecky.

PSY 611 Dissociative Disorders. Students attend sessions with dissociative disorders patients for assessment and treatment purposes on the Dissociative Disorders Unit at Rush North Shore Medical Center. The clerkship may be tailored to the specific needs and interests of the student who follow one to two patients for the entire rotation. A self-evaluation on the general knowledge component will be supplied at the beginning of the rotation to assist in providing some focus for the study of this area of psychiatry. Students are evaluated on the basis of attendance, attitude, and general knowledge of dissociative disorders gained during the rotation. Interview with a course director is required to enroll in clerkship. Prerequisite: PSY 601 FA WI SP SU [4-6 weeks] Braun, Sachs.

PSY 621 Outpatient Psychiatry. The focus is to develop diagnostic and treatment planning skills for outpatients, to learn and implement brief and intermediate length psychotherapeutic interventions, and to develop knowledge and skills in psychopharmacologic treatment of outpatients. Students will increase their awareness of themselves as clinicians and the importance of transference and countertransference in the care of patients through intensive individual supervision from faculty and residents. Attendance will be required at

diagnostic treatment conferences and advanced course in psychotherapy and pharmacology. Prerequisite: PSY 601. FA WI SP SU [4-12 weeks] Fink.

PSY 651 Substance Use Disorders. Students will learn to recognize, appropriately evaluate and treat patients with substance abuse disorders in inpatient and outpatient settings, to become familiar with detoxification and medical complication of substance abuse, and to learn the role of the physician in working with other substance abuse professional. Reading of pertinent literature required. Supervised management of patients with substance abuse disorders. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Epstein.

PSY 683 Clinical Research in Psychiatry. The student is exposed to basic clinical psychiatric research and will be involved with patients with a wide spectrum of psychiatric disorders. Most of the research is based on using medical treatment that is investigational. The objective of this clerkship is to become familiar with basic clinical research including use of psychiatric rating scales and basic research design. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Zajecka.

PSYCHOLOGY

NOTE: Courses numbered 550 and above require admission to the graduate program in psychology and permission of the program director.

PSC 501 Psychology of Learning. This course examines basic learning processes from an historical perspective and through problems of current interest. Topics include principles of classical and operant conditioning, discrimination and generalization, the nature of reinforcement, aversive control of behavior, biological constraints on learning, and neural substrates of learning and memory. (3)

PSC 505 Statistics I. Same as PVM 541. (4)

PSC 506 Statistics II. Same as PVM 542. (3)

PSC 507 Statistics III. Same as PVM 543. (3)

PSC 508 Methods in Behavioral Research. This course examines theory and research methodology as they influence the formulation of hypotheses and research designs in behavioral, social, and clinical research. Prerequisite: PSC 507. (3)

PSC 521 Biological Bases of Behavior. An examination of the neural substrates of behavior. Topics include synaptic transmission and patterns of neural activity, sensory and motor processes, sleep and arousal, and emotion and motivation. (3)

PSC 522 Psychophysiology. Evaluation of psychological processes by means of physiological responses. Methodology and empirical data in the psychophysiological analysis of attention, perception, learning, and memory. Critical analysis of nervous system organization and responsiveness to acute stress and to chronic dysfunction. Prerequisites: PSC 501, 521. (3)

PSC 531 Developmental Psychology I: Infancy through Adolescence. The first of a two-course sequence on the normative processes of behavioral change across the life span. Major theories of cognitive, social, personality, and emotional development from early infancy through adolescence are presented. Methodological issues are studied in the context of current and classical research findings. (3)

PSC 532 Developmental Psychology II: Adulthood and Aging. A continuation of PSC 531. Survey of current research and theory in development throughout adulthood. Empirical data concerning the influence of biological changes, social factors, cognitive processes, and mental and physical health on adult development are reviewed. Prerequisite: PSC 531. (3)

PSC 534 Developmental Psychobiology. Brain-behavior relationships from infancy through puberty. Emphasis is placed on animal models and/or neurobehavioral analyses of attention disorders, hyperactivity, retardation, aggression/dominance, autism, etc.. The anatomical, neurophysiological and behavioral components of brain development and brain damage are examined throughout the early developmental period. Prerequisites: PSC 501, 521. (3)

PSC 536 Psychology of Aging. An advanced analysis of the psychology of aging, with consideration of biological and psychosocial factors affecting developmental changes in late adulthood. Topics include methodological issues in research, cognitive processes, personality, psychopathology, and the influence of health and illness on aging and behavior. Prerequisite: PSC 532. (3)

PSC 541 Theories in Social Psychology. Theoretical approaches to the study of social interaction. Analysis of individual, group, and collective behavior from both psychological and sociological perspectives. Topics include: general theories and methods, empirical data on attribution and social perception, attitude formation and change, conformity, small groups, and collective behavior/mass movements. (3)

PSC 542 Social Bases of Behavior. Examination of family, small group, and social networks as determinants of behavior and as environments within which behavior occurs. Includes theory and processes of role allocation, dyad and triad formation, coalitions, and conflict. (3)

PSC 543 Topics in Medical Sociology. Review of current topics which are announced each term. May be repeated. (1 to 3)

PSC 545 Health and Illness Behavior. Empirical review of concepts basic to the understanding of health and illness behavior, emphasizing a multidimensional model. Topics include personality, stress, and the development of illness; coping with illness; acute vs. chronic illness; factors influencing patient compliance; theories of pain; developmental stage of conceptions of illness; and biological, social, and psychological risk factors in illness. (3)

PSC 548 Program Evaluation. Theory and practice of program evaluation in health care settings. Topics include the uses of evaluation in health service organizations, methodological issues in program assessment, and problems encountered in communication and implementation of evaluation findings. Prerequisites: PSC 507, 541. (3)

PSC 551 Theories of Personality. An examination of the major traditions in personality theory and research: psychoanalytic, trait, social learning, and phenomenological. Empirical research relating to personality consistency and behavioral specificity is reviewed. Same as Behavioral Science 524. (3)

PSC 553 Psychopathology. Description of psychopathology, with review of defining signs and symptoms in children and adults. The interplay of social, learning, and physiological factors in the etiology of behavioral disorders is considered. Prerequisites: PSC 532, 551. (3)

PSC 554 Behavior Disorders in Children. Major behavioral disturbances of childhood and their relationship to psychological theories and research. Prerequisite: PSC 553. (3)

PSC 557 Human Neuropsychology. Consideration of complex psychological functions as they relate to the human central nervous system. Topics include attention, emotion and motivation, perception, psychomotor behavior, language, memory and problem solving. Empirical data concerning cerebral localization, asymmetry of function, and cerebral plasticity are reviewed. Prerequisite: PSC 521. (3)

PSC 558 Psychology of Sleep. Major theories of mental activity during sleep, including a critical analysis of the relationship between neurophysiological activity and psychological activity during sleep and the interaction between sleeping and waking. Methodological approaches to dream content analysis and to the study of dream function are considered. Prerequisite: PSC 521. (3)

PSC 571 Principles of Psychotherapy. An introduction to verbal psychotherapy. Survey and analysis of techniques in psychoanalytic and neoanalytic, client-centered, and cognitive psychotherapy. Prerequisite: PSC 551. (3)

PSC 572 Principles of Behavior Change. An overview of theoretical approaches, empirical studies, and practical issues in the field of behavioral assessment and intervention. Behavioral observation, principles of behavioral management, and cognitive restructuring. Prerequisite: PSC 501. (3)

PSC 575 Assessment of Intelligence. Examination of theoretical and practical issues in the measurement of intelligence. Topics include the nature of intelligence, the construction and use of intelligence tests, administration of standardized tests, analysis and presentation of test data. Lecture and laboratory. (3)

PSC 576 Assessment of Personality. Historical and theoretical issues in projective and objective personality assessment. Methodological issues involving empirical vs. rational test construction, clinical vs. actuarial prediction, response styles, etc., are considered. Lecture and laboratory. (3)

PSC 581 Directed Research. Individual projects (Nonthesis research) under the supervision of a faculty member. Arranged by consultation with the program director. (1 to 6)

PSC 590 Special Topics in Psychology. Advanced topics selected for examination and discussion. Topics vary from term to term. (1 to 3)

PSC 599 Directed Readings. Readings in a topic area of particular interest under the direction of a faculty member. Arranged by consultation with the program director. (1 to 3)

PSC 605 Professional Issues. Topics of professional concern in health psychology: issues in professional identity; APA standards of ethics; client/patient/subject rights; legal issues; and interface with other health disciplines. (3)

PSC 611, 612, 613 Practicum in Assessment and Intervention Skills I, II, III. A three-quarter sequence of supervised experience in assessment and intervention. This practicum involves experience in a variety of psychotherapeutic techniques. Students are supervised in the administration, scoring, and interpretation of intelligence and personality tests, including the Wechsler Intelligence Scale, Stanford-Binet, MMPI, TAT, and Rorschach. (2) (2) (2)

PSC 616, 617 Practicum in General Clinical Psychology I, II. A two-quarter sequence of supervised experience with both children and adults. The practicum integrates clinical course content with the evaluation and management of behavioral and emotional problems in diverse patient populations. Prerequisite: Psychology 613. (3) (3)

PSC 621 Clinical Health Psychology. An examination of psychological processes as they relate to the diagnosis and treatment of physical disease. Prerequisite: PSC 553. (3)

PSC 622 Advanced Psychotherapy. Prerequisite: PSC 571. (3)

PSC 623 Advanced Behavioral Interventions. Prerequisite: PSC 572. (3)

PSC 625 Advanced Rorschach Interpretation. Theory of the Rorschach projective process and the administration, scoring, and interpretation of test protocols. Issues covered are: norms, reliability, personality description, diagnosis of psychopathology, and use in planning treatment. Prerequisites: PSC 553, 576. (3)

PSC 629 Practicum in Clinical Health Psychology. Intensive, supervised experience with adult medical

populations. Emphasis is given to the evaluation of medically-related problems from a psychological perspective, and the development of integrated, comprehensive treatment plans. May be repeated to a maximum of six credits. Prerequisite: Psychology 617. (3)

PSC 631 Pediatric Psychology. Principles of clinical health psychology as they apply to children and adolescents. Intervention methods appropriate to children in inpatient settings are emphasized. Prerequisite: PSC 553. (3)

PSC 633 Assessment in Pediatric Psychology. Theoretical and practical issues in the assessment of individuals aged 3-16. Emphasis is given to assessment, recommendations for treatment/intervention, and consultation with parents, medical, and professional staff. Lecture and laboratory. Prerequisites: PSC 575, 576. (3)

PSC 639 Practicum in Pediatric Psychology. Intensive, supervised experience in a variety of diagnostic and intervention techniques appropriate to pediatric populations. May be repeated to a maximum of six credits. Prerequisite: Psychology 617. (3)

PSC 641 Clinical Neuropsychology. Systematic analysis of behavioral disturbances associated with disease, injury, and/or functional alteration of the central nervous system; behavioral manifestations associated with specific neurological syndromes and diseases. Prerequisite: PSC 557. (3)

PSC 643 Assessment in Clinical Neuropsychology. Rationale, procedures, and substantive content of neuropsychological consultation. Selection and administration of appropriate assessment procedures, evaluation and integration of data, formulation of treatment and management recommendations, and consultation with physicians and other health professionals are considered. Lecture and laboratory. Prerequisites: PSC 557, 575, 576. (3)

PSC 649 Practicum in Clinical Neuropsychology. Supervised experience in neuropsychological assessment and consultation. May be repeated to a maximum of six credits. Prerequisite: Psychology 617. (v)

PSC 651 Clinical Sleep Disorders. Diagnosis and treatment of sleep and arousal disorders as recognized by the Association of Sleep Disorders Centers. Major diagnostic categories are reviewed in terms of clinical presentation, etiology, laboratory findings, and potential therapies. Lecture and laboratory. Prerequisite: PSC 558. (3) [2-4 weeks] Cartwright.

PSC 659 Practicum in Clinical Sleep Disorders. Supervised experience in the sleep disorders service: patient interviews, sleep assessments, laboratory evaluation, and case presentations. May be repeated to a maximum of six credits. Prerequisite: PSC 558. (3)

PSC 669 Advanced Practicum. Practicum experience in the field of a student's special interest. Arranged by consultation with the program director. (v)

PSC 681 Directed Research. Individual projects (nonthesis research) under the supervision of a faculty member. Arranged by consultation with the program director. (v)

PSC 699 Thesis Research. (3 to 12 credits per quarter)

PSC 700 Internship. (Noncredit)

RADIOLOGY

RAD 601 Diagnostic Radiology. Basic radiologic principles are demonstrated and the role of diagnostic radiology as a clinical setting for patient care and medical and surgical specialty consultations is emphasized. Students prepare one case for the teaching file and gives one oral presentation to the course director. There is a special lecture series covering unknown cases, teaching conferences, assigned readings, teaching tapes to review, and a written final examination. FA WI SP SU not in June, July, November, December or January [4 weeks] C. Smith.

RAD 606 Nuclear Medicine. All facets of the disciplines of nuclear medicine are studied, with particular emphasis on radionuclide scanning of organ systems for diagnostic and research purposes. Emphasis is on pathophysiologic correlation and case study. Literature review and individual topics are encouraged to provide in-depth study in the broad field of nuclear medicine. Prerequisite: MED 601. FA WI SP SU [2-4 weeks] Fordham.

RAD 611 Interventional Radiology. Patient care is emphasized as both non-vascular as well as vascular interventional examinations are performed on both inpatients and outpatients. Students will have assigned readings and will be able to attend lectures given by the Diagnostic Radiology attending staff and residents included in RAD 601. Not offered in June, July or December. Prerequisite: RAD 601. FA WI SP SU [4 weeks] Matalon.

RAD 612 Correlative Imaging. This clerkship exposes the student to ultrasound, computed tomography and magnetic resonance imaging with emphasis on correlation of radiologic findings. Students will be assigned reading and spend time in each of the various imaging sections in the radiology department working with attending physicians and residents. Not offered in June, July or December. Prerequisite: RAD 601. FA WI SP SU [4 weeks] Silver.

RAD 621 Radiation Oncology. The student will participate in the normal activities of the department including consultations, treatment planning, and follow-up care of cancer patients. Students are assigned to two different services allowing exposure to different cancer sites. FA WI SP SU [2-4 weeks] Phillips.

RELIGION, HEALTH AND HUMAN VALUES

REL 451 Introduction to Religion and Health. This course examines religion in human experience; the use of ritual, symbol and story linking human experience with constructions of the Ultimate; as marker or life cycle passages; and as help and hindrance in illness, suffering and death. (2-0-2) Burck.

REL 453 Illness and Faith. An examination of patients' understanding of body, time, shame, community, the self, sacrifice and suffering, religious resources, and the relationship between God and illness in light of personal faith. Employs seminar method and some clinical materials. (2-0-2) Burck.

REL 454 Health, Illness and Human Values. This course explores the relationship of patient responses to illness (which vary according to values-related factors such as ethnicity, gender, family structure, and belief systems) to the healthcare system (structures and providers). It also looks at the philosophical category of epistemology and the idea of the social construction of reality as a way of conceptualizing differing illness beliefs/behaviors. (2-0-2) Burton.

REL 464 Death and Dying. Examines central/major issues dying persons face and ways they face them, exploring narratives of dying persons, their families and those who care for them. Compares theories about the experience of dying, caregivers' personal death awareness and selected ethical issues. (2-0-2) Burck, Burton.

REL 465 Death and Dying in Literature. Drawing on classical and contemporary literature, this course will consider various literary portrayals of death, dying and bereavement; the meanings of death in the life of the family and the society and themes of pain, suffering, courage, resolutions of conflict and life in the face of death. (2-0-2) Burck, O'Reilly.

REL 470 Assessment of Patient Spirituality. A survey of various models of spiritual assessment, their strengths and weaknesses; overview of research related to each; field experience with selected models; development of comprehensive model of spiritual assessment and implications for clinical practice. (2-1-2) Fitchett.

REL 475 Suffering Means...? This course examines the issue of suffering by studying the claims and contributions of various belief systems. A narrative approach to the subject will be used, and autobiographical and family stories, interviews with patients as well as excerpts from literature, drama and film will be used to illustrate various meanings. (2-0-2) O'Reilly.

REL 480 Seminar in Healthcare and Popular Culture.

Through the use of popular TV programs, movies, novels and cartoons, this course will examine the theme of the relationship between humankind and technology to healthcare in American culture. (2-0-2) O'Reilly, Burton.

REL 485 The Human Body: A Work of Art.

Drawing on portrayals of the human body by artists down through the centuries, this course will consider images of ideal beauty, understandings of pain, as well as perspectives on power, change, the human condition, and sexuality. The interface between these artistic themes and the sphere of medicine will be examined. (2-0-2) O'Reilly.

REL 501 Introduction to Healthcare Ethics.

This interdisciplinary course considers representative foundational theories of ethics, religious perspectives, and methodology, as well as selected issues such as paternalism vs. enhancement of patients' autonomy; justice; beneficence vs. nonmaleficence; legal issues, public policy. (3-1-3) Burck, Burton, Brown, Staff.

REL 502 Major Issues in Healthcare Ethics.

The focus in the course is on "End of Life--Ending Life" with topics such as advance directives, DNR's, withholding and withdrawing treatment, treatment decisions and ethics, PVS, brain death, euthanasia, allocation, etc. Both ethical and legal perspectives are considered. Prerequisite REL 500. (3-1-3) Burck, Burton, Brown, Staff.

REL 503 Seminar in Healthcare Ethics.

Students present a major seminar paper on an approved topic, in clinical healthcare ethics, and lead discussion around the issue. Prerequisite REL 501. (3-1-3) Burck, Burton, Brown, Staff.

REL 510 Seminar in Health and Human Values.

Interdisciplinary seminar integrating the written, visual and performing arts with philosophical and clinical issues and approaches to healthcare. (2-0-2) Staff.

REL 524 Healing Women and the Healthcare System.

An examination of the issues related to the assessment of women as patients and as caregivers; how the assessment influences goals and approaches to patient and family care; the historical impact on today's healthcare system. The purpose of the course is to provide each of its participants with a fuller understanding of gender differences so that the care offered to and by them may contribute to greater wholeness and healing. (2-0-2) O'Reilly.

REL 576 Values and Power: Ethics for Healthcare Managers.

Considers questions such as what is ethics? What are the basic ethical questions healthcare managers will encounter? What are the ethical responsibilities of the healthcare manager? What are the manager's responsibilities for providing an environment in which others can exercise their ethical responsibilities? (3-0-3) Burck, Staff.

REL 601 Perspectives on Healthcare Ethics.

This interdisciplinary course is divided into three parts: an intensive introduction to ethical theories and methodologies; a review of law, ethics and medicine; and a case-oriented focus on specific issues in healthcare ethics. In addition,

the impact of ethnicity, religion, class, and gender on moral decision-making will be considered. Prerequisite: admission to doctoral program. (4-0-4) Burck, Burton, Brown, DeWolfe.

REL 699 Directed Reading and Research in Religion,

Health and Human Values. Individual projects under the supervision of a faculty member. (arranged) Staff.

SPEECH AND HEARING SCIENCES

SHS 501, 502 Speech and Hearing Sciences I, II.

Normal processes in language, speech, and hearing. Concepts in basic acoustic forms, and acoustic phonetics are presented. Theories of hearing, language, and speech are considered along with an introduction to psychoacoustics. (3-0-3)

SHS 505 Audiology I.

Students develop skills in basic audiological methods for adults and children, including puretone testing, speech audiometry, masking, and impedance testing. Overview of medical considerations, tuning fork tests, special tests, hearing conservation, and hearing aids. Considerations regarding infants, difficult to test patients, and geriatrics. (3-0-3)

SHS 506 Audiology II.

A survey of audiologic tests developed to provide differential diagnosis of auditory pathology. Course content will be applied to students' practicum experience. (3-0-3)

SHS 507 Neurological Bases of Speech and Hearing.

Central and peripheral nervous system structures which form the neurologic bases for speech, hearing and language are presented. (3-0-3)

SHS 511, 512, 513, 514, 515 Speech-Language

Pathology Practicum I, II, III, IV, V. Supervised clinical experience with patients presenting speech, language, voice, fluency, or swallowing impairments. Students develop evaluative, therapeutic, counseling, and report-writing skills. The relationship of speech-language pathology to other health care professions is examined. (v-v-v)

SHS 516, 517, 518, 519, 520 Audiology Practicum I,

II, III, IV, V. Supervised clinical experience with patients displaying various hearing impairments. Students develop skills in diagnostic evaluation, obtaining case histories, counseling, and treatment techniques for pediatric through geriatric patients. The relationship of audiology to other health care professions is examined. (v-v-v)

SHS 522 Language Disorders in Children.

An examination of normal and abnormal language development. Consideration is given to theories of language learning, prerequisites to symbolic communication, normal acquisitions, language analysis procedures and etiological variables. Methods of language assessment, treatment models, and therapeutic procedures are studied. (3-0-3)

SHS 523 Sign Language. This introduction is designed to develop sign language skills to a beginning level for both expressive and receptive vocabulary. (2-0-2)

SHS 524 Fluency, Dysfluency, and Stuttering. Child and adult fluency disorders will be studied. Students will learn to describe pertinent characteristics of speech fluency, identify the presence of a clinically significant fluency problem, and determine etiologic and maintaining factors. Appropriate management strategies also will be considered. (3-0-3)

SHS 526 Industrial Audiology. An examination of hearing conservation programs in industry and the current regulations governing them. (2-0-2)

SHS 531 Amplification for the Hearing Impaired. A working knowledge of hearing aids is provided in this course. A brief historical perspective on amplification is accompanied by an evaluation of the modern hearing aid. This includes a discussion of the variety of aids available, earmold acoustics, design and modifications, selection techniques, In Situ performance and fitting procedures. Electroacoustic analysis and troubleshooting will be covered along with Illinois regulations for dispensing hearing aids. In addition, hearing aid evaluations and fittings for children and assistive listening devices for all ages will be studied. Cochlear implants will be included. Laboratory participation will include earmold impressions, electroacoustic analysis, earmold modifications, troubleshooting hearing aids and probe microphone measurements. (v-v-3)

SHS 532 Advanced Hearing Aids. An examination of hearing aid dispensing by the audiologist. State and federal regulations, in-the-ear hearing aid modification, marketing techniques, and advanced hearing aid measurements are some of the topics covered. (1-2-3)

SHS 533 Adult Aural Rehabilitation. An examination of adult aural rehabilitation. Visual, auditory, and bi-sensory stimuli in communication are considered along with assessing communicative function, auditory training, speechreading, amplification, assistive listening devices, and the psychosocial aspects of hearing impairment. The geriatric population and the working-age adult will be considered as separate rehabilitative challenges. (3-0-3)

SHS 534 Pediatric Aural Rehabilitation. An examination of the strategies involved in the management of hearing impaired and deaf children. Topics discussed include parent counseling, auditory training, speech and language training and educational opportunities. Various educational models will be covered. The audiologist's role in case management will be discussed. (v-v-3)

SHS 542 Electronystagmography. Anatomy and physiology of the vestibular and ocular motor systems will be reviewed. Disorders of patients presenting vertiginous symptoms will be discussed with emphasis on technique and interpretation of ENG findings. Acceleration measurements will be introduced.

SHS 543 Electrophysiologic Assessment of the Auditory System. Reviews the principles and practices

of electrophysiologic testing with emphasis on the auditory brain-stem response. (v-v-4)

SHS 544 Pediatric Audiology. The major etiologies underlying hearing impairments encountered in the pediatric population. Identification programs for neonates and children are discussed. Primary emphasis is placed on pediatric audiological evaluation skills, including differential case history, behavioral observations, audiological test procedures. Cross-cultural topics are considered in relation to childhood hearing loss. (3-0-3)

SHS 545 Anatomy and Physiology of Speech and Hearing. The neurologic, anatomic, and musculoskeletal bases of both speech and hearing. (3-0-3)

SHS 546 Anatomy and Physiology of Speech and Hearing Lab. The lab section examines the structures important for speech and hearing through various activities which may include cadavers, videotapes, computerized learning, temporal bone lab. (0-1-1)

SHS 548 Advanced Electrophysiologic Assessment. A detailed examination of specialized clinical evoked potentials. Responses covered include the frequency following response, middle latency response, P300, and visual and somatosensory responses. In addition, new application of standard AEP procedures will be covered. Otoacoustic emissions are also included. (2-1-3)

SHS 550 Electronystagmography Laboratory. A review of basic technique and practical considerations for performing ENG. (0-1-1)

SHS 551 Diagnostic Methods in Speech-Language Pathology. This course will focus on concepts in educational and psychological testing and measurement. General aspects of the diagnostic evaluation will also be presented. (3-0-3)

SHS 553 Instrumentation for Hearing and Speech. An introduction to instrumentation used in the measurement and treatment of speech and hearing processes. Concepts related to the evaluation of instruments are presented. Calibration procedures are demonstrated. Clinical and research applications are emphasized. (2-1-3)

SHS 556 Swallowing I. A review of the anatomy and physiology of normal deglutition. Disorders of deglutition, both neuromuscular and post-surgical, will be studied. Bedside and radiographic diagnosis will be covered. (1-0-1)

SHS 557 Swallowing II. Management decisions and therapy techniques for patients with disordered oral feeding will be emphasized. Medical and surgical treatments will be covered. (1-0-1)

SHS 558 Swallowing III. Knowledge from Swallowing I and II will be integrated in this course. Current research will be reviewed. An overview of various study techniques and instrumentation used in assessing swallowing disorders will be included. (1-0-1)

SHS 561 Articulation Disorders. The focus of this course is on normal and abnormal aspects of speech.

Consideration is given to phonetic transcriptions, theories of and prerequisites to speech development, phonological analysis procedures and normal acquisition. Etiological factors related to abnormal articulation are examined. Articulation assessment strategies, treatment models, cross-cultural issues and remediation procedures are studied. (4-0-4)

SHS 562 Craniofacial Anomalies. An overview of the natural history of cleft palate and other craniofacial anomalies characterized by specific speech problems. The emphasis will be on the development of the multidisciplinary team, speech disorders secondary to these craniofacial anomalies, history of previous care and treatment of persons with these disorders, update on recent research, new treatment developments, and approaches to diagnostic and therapeutic speech intervention. Observation of diagnostic and therapeutic speech intervention. Observation of diagnostic evaluations and treatment planning by a multidisciplinary craniofacial team is included as part of the curriculum. (3-0-3)

SHS 563 Voice Disorders. The assessment and management of voice disorders. Students will acquire skills in identifying various pathologies, forming hypotheses as to etiologic and maintaining factors and implementing management strategies. Various forms of laryngeal speech will be discussed. The contribution of otolaryngology, neurology, and psychiatry in patient management will also be reviewed. (4-0-4)

SHS 564 Aphasia. Adult onset neurogenic language disorders are examined with emphasis on pathophysiology, symptomatology, assessment, diagnosis, treatment, and the role of counseling. Theoretical models and past and current controversies will be included. (4-0-4)

SHS 565 Motor Speech Disorders. The identification and management of speech disorders secondary to central and/or peripheral nervous system damage. Topics will include conducting a motor speech exam; components of the various dysarthrias; motoric and linguistic views of apraxia of speech; management. Neural basis of speech production will also be reviewed. (3-0-3)

SHS 566 Pathophysiology of the Auditory System. This course will examine various ear diseases and other pathologies as they affect the auditory system. (3-0-3)

SHS 568 Cognitive Disorders. Current trends in habilitation and rehabilitation of pediatric and adult patients with cognitive disorders. Emphasis will be on the role of the speech language pathologist as a member of the interdisciplinary team. Neuropathologies, diagnostic procedures, recovery models, and treatment methods will be studied. (3-0-3)

SHS 575 Issues in Counseling. The major focus is on understanding the process of the helping relationship. In addition, skills and competencies that interact to influence effectiveness as a communicator will be developed. Knowledge of selected counseling theory as it integrates into practice will be acquired. (3-0-3)

SHS 582 Introduction to Research in Communication Disorders. The development of skills in understanding and critiquing research reports is emphasized. Principles of the scientific method and criteria for evaluating research are studied. Consideration is given to both group and single subject research designs. (4-0-4)

SHS 585 Professional Issues I. An introduction to various health professions in comprehensive patient care with an emphasis on their relationship with speech/language pathology and audiology. (1-0-1)

SHS 586 Professional Issues II. Issues relating to preparation for the paid professional experience are discussed, including resume writing, interviewing techniques, career planning, certification and accreditation. (1-0-1)

SHS 589 Research Practicum. The development of practical research skill through involvement in a research project. Research methods such as data collection, data analysis, and report writing are emphasized. (1-2-3)

SHS 590 External Practicum in Speech Pathology. Students are placed at external practicum sites at Rush network hospitals and/or other cooperating institutions. (v-v-v)

SHS 591 Advanced Clinical Training. Advanced training in speech-language pathology or audiology. (v-v-v)

SHS 595 External Practicum in Audiology. Students are placed at external practicum sites at Rush network hospitals and/or other cooperating institutions. (v-v-v)

SHS 598 Thesis. Under the guidance and direction of a faculty member and committee, the student originates, proposes, and executes an experiment. These projects must reflect a high degree of scholarship. (v-v-v)

SHS 599 Independent Study. Students pursue in depth an area of their choosing under the direction of a faculty member. (v-v-v)

SURGERY

SUR 601 Core Clerkship in Surgery. Principles of preoperative and postoperative care, diagnosis of surgical disease, indications for surgery, and physiological principles of surgery are stressed through the case study method. The clerkship teaches surgical pathophysiology, helps students recognize surgical emergencies and outline their therapy, improves diagnostic ability and encourages use of the library, and increased poise in presenting cases. In addition to six weeks of general surgery, the students choose two three-week rotations from available surgical electives to complete the clerkship. Prerequisite: CSS 502. FA WI SP SU [12 weeks] Doolas.

SUR 602 Surgical Techniques. The objective is to acquaint the student with scrubbing technique, operating room etiquette, gowning, draping, and instrument handling; it provides an introduction to techniques in the various fields of surgery. The course is conducted in the large animal laboratory from 1-5 p.m. on Monday and

Wednesday. Prerequisite: SUR 601. FA WI SP SU [5 or 6 weeks] Monson, Haklin.

SUR 604 Advanced Surgery Clerkship. The student assumes many of the duties and responsibilities of a resident physician. This includes responsibility for preoperative and postoperative care, participation in surgery, and rotating on-call service. The work is primarily with hospitalized patients, with opportunity for ambulatory and elective surgery. Independent library investigative projects are assigned. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Doolas.

SUR 605 Anesthesiology. Areas covered are: cardiopulmonary resuscitation (CPR); airway management; respiratory inadequacy and artificial ventilation with mask and bag; circulatory inadequacy and support of the failing circulation; topical and infiltrative anesthesia; the actions and interactions of depressant and stimulant drugs commonly encountered or used by anesthesiologists. Students participate in preoperative evaluation and preparation of surgical and obstetric patients. Prerequisite: MED 601, SUR 601. FA WI SP SU [4 weeks] Badrinath.

SUR 606 Clinical Transplantation. The clinical aspects of transplantation, including donor and recipient surgery and preoperative and postoperative care are studied. The student participates in organ preservation as well. Seminars on the fundamental and clinical aspects of transplant immunology are held. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Williams.

SUR 611 Cardiovascular Surgery. This course emphasizes the clinical and laboratory diagnosis of cardiac (both congenital and acquired) and vascular disorders considered for surgical management. Indications for surgery, preoperative evaluation and postoperative care are discussed at patient rounds, in conferences, and on an individualized basis. Prerequisite: SUR 601, 605. FA WI SP SU [4 weeks] Piccione.

SUR 612 Surgical Intensive Therapy. This rotation exposes the experienced student to comprehensive management of critically ill surgical patients. Application of life support techniques including vaso-active drugs, mechanical aids to circulation, pacing, counter-shock, and respiratory therapy. Pathophysiologic discussion and integration with cardiopulmonary analysis of data obtained from invasive critical care medicine are emphasized. Radiologic, medical, and surgical aspects of critical care medicine are also incorporated. Prerequisite: SUR 601, SUR 605. FA WI SP SU (4 weeks) Rothenberg.

SUR 613 Peripheral Vascular Surgery. This course emphasizes the clinical non-invasive laboratory and radiologic disorders considered for surgical management. Indications for surgery, pre-operative evaluation and post-operative care are discussed at patient rounds, in conferences and in the operating room. Prerequisite: SUR 601, SUR 605. FA WI SP SU (4 weeks) DeValle.

SUR 616 Plastic and Reconstructive Surgery. The basic surgical principles of wound care, wound treatment, and general techniques associated with the treatment of acute trauma, burns, lacerations, and blunt trauma are

studied. Instruction in the care of acute injury of the hand and basic instruction in the diagnosis and treatment of facial and bone fractures will be included. Experience in suturing animal wounds and actual surgical technique in the emergency room may be included. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Schafer.

SUR 626 Principles of Urology. This clerkship provides further experience in the diagnosis and management of urological problems as a supplement to the basic clerkship in surgery. Prerequisite: SUR 601. FA WI SP SU [4 weeks] McKiel.

SUR 627 Genitourinary Neoplasia. The basic concepts of neoplasia, using the genitourinary neoplasms as models are presented. These neoplasms have been selected because, collectively, they span the entire spectrum of malignancy. The student actively participates in the management of both hospitalized and ambulatory patients. Multidisciplinary seminars and individual projects are available. Departmental approval required. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Flanagan.

SUR 641 Orthopedic Sports Medicine. The basic principles of physical examination, non-operative and operative treatment and rehabilitation of sports-related injuries. Clinical exposure includes participation in office hours, patient evaluation and hospital care, high school game and sports event coverage with orthopedic house officers and staff attendings, experience in intercollegiate field house training rooms, and the evaluation of the acutely injured athlete. Diagnostic and surgical arthroscopy of the knee and shoulder reconstructive surgery are emphasized. Prerequisite: SUR 601. FA WI SP SU (4-6 weeks) Bach.

SUR 651 Clinical Orthopedics. The primary emphasis is on examination, diagnosis, pathology, and treatment of conditions affecting the musculoskeletal system. The student participates in clinical work in physicians' offices and hospital facilities such as the cast room and the operating room. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Gitelis.

SUR 652 Orthopedic Research. Research and bioengineering as applied to the musculoskeletal system are studied with particular emphasis on the pathomechanics of human gait, mechanics of lifting, experimental use of implants in animals and their effects on biologic systems. Prerequisite: SUR 601. FA WI SP SU [8 weeks] Andriacchi.

SUR 656 Clinical Neurosurgery. This clinical clerkship expands upon and demonstrates the practical application of neurological sciences. The emphasis is on diagnosis and pathophysiological correlation of diseases of the nervous system. Practical application of neurosurgical management and diagnosis as well as the treatment of neurosurgical emergencies is studied in detail. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Whisler.

SUR 657 Principles of Ophthalmic Examination. Students learn basic ophthalmic terminology, history and examination principle, attend daily rounds and other didactic sessions, and observe surgery. It is intended that

students will not only learn techniques of examination which will be useful in their own medical practices, but will also understand the capabilities and limits of the ophthalmologist in order to make better use of ophthalmic consultations. FA WI SP SU (2 weeks) T. Deutsch.

SUR 658 Research in Ophthalmology. Students will be introduced to techniques of research including problem identification, study design, research methods, data collection, statistical analysis literature review, and manuscript production. Although the elective must be taken for a minimum of eight weeks, it is not necessary for a project to be completed within the short period of the elective, nor is it guaranteed that a given research project will culminate in a publication. FA WI SP SU (8 weeks) T. Deutsch.

SUR 659 Otolaryngology. Clinical experience is provided in the diagnosis and management of patients with diseases of the ear, nose, throat, head, and neck. Office practice and the care of hospitalized patients provide the basis for clinical instruction, with emphasis on case study and proper use of instruments. Departmental pathology, radiology, and otology conferences and journal club are included. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Caldarelli.

SUR 661 Surgical Oncology. Concentrated experience in the surgical diagnosis and management of patients with tumors is provided. Correlation of surgical problems with anatomic and pathological physiology is stressed, including examination of gross and microscopic tissue. Attendance at the tumor clinic, tumor conference, and head and neck tumor conference is required. Prerequisite: SUR 601. FA WI SP SU [4-6 weeks] Staren.

SUR 670 Speech and Hearing. An introduction to speech, language, and hearing problems. Observation and interaction with patients demonstrating aphasia, dysarthria, stuttering, cleft palate, and developmental speech abnormalities are provided. Experience in interpretation of basic hearing assessment, as well as special auditory tests to differentiate conductive and sensory neural hearing loss; cochlear and retrocochlear pathology, and nonorganic and organic hearing loss is also provided. Prerequisite: third year medical student status. FA WI SP SU [2 to 4 weeks]

SUR 671 Thoracic Surgery. The diagnosis, and operative and postoperative care of patients with pulmonary and esophageal disorders are studied in both hospitalized and ambulatory patients. In addition, students assist in patient care, and topics are assigned for discussion. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Kittle.

SUR 680 Third World Medicine Surgery Clerkship. Students will be part of an approximately 30 member team doing cleft-lip and palate surgery on children. The varying degrees of social and medical conditions provide the third world background with an exciting opportunity for learning. The team works intensely each day and has operated on as many as 200 children in one week. Approval must be obtained from the dean's office. Offered in February only. Fourth year standing. (4 weeks) Bradley.



FACULTY

Departmental Faculty Listing 182

Alphabetical Faculty Listing 203

Faculty by Department

Anatomy

Schmidt, Anthony*
Professor
Chair
Andriacchi, Thomas P.*
Professor
Burcham, James M.
Asst. Professor
Dinsmore, Charles E.*
Assoc. Professor
Durica, Thomas E.*
Asst. Professor
Hovde, Christian A.
Asst. Professor
Hughes, W. Franklin*
Assoc. Professor
Jacob, Susan K.*
Asst. Professor
Kerns, James M.*
Assoc. Professor
Khodadad, Jena*
Asst. Professor
Kuszak, Jerome R.
Assoc. Professor
Leven, Robert M.
Asst. Professor
Maibenco, Helen
Emeritus
Rawlins, Richard
Asst. Professor
Seale, Raymond*
Professor
Sumner Jr, Dale R.*
Asst. Professor
Williams, James M.*
Asst. Professor

Anesthesiology

Ivankovich, Anthony
Professor
Chair
Adkins, James M.
Instructor
Barkin, Robert
Asst. Professor
Bautista, Michael J.
Assistant
Bayba, Jonathan L.
Instructor
Bergquist, David A.
Instructor
Bonifer, Thomas M.
Assistant
Brandon, Michael S.
Associate

Braverman, Berton
Asst. Professor
Buehler, Eric Andre
Assistant
Callahan, Patrick
Instructor
Carroll, Gilbert
Assoc. Professor
Chang, Randolph Yoon
Assistant
Djordjevich, Ljubomir
Asst. Professor
Hahn, Robert
Visit. Asst. Prof.
Heckel, V. Eileen
Emeritus
Heller, Floyd N.
Assoc. Professor
Hong, Suzette Catherin
Assistant
Kerchberger, John P.
Asst. Professor
Larson, John M.
Asst. Professor
Lee, Roger H.
Instructor
Lubenow, Timothy R.
Asst. Professor
Martin, Nell F.
Instructor
Martin, William C.
Instructor
McAfee, David M.
Assistant
McCarthy, Robert J.
Asst. Professor
Meister, Michael D.
Instructor
Miller, Paul E.
Instructor
Morch, E. Trier
Emeritus
Newman, L. Michael
Asst. Professor
O'Connor, Christopher
Instructor
Parnass, Samuel M.
Asst. Professor
Pittman, Scott K.
Instructor
Rose, Raymond F.
Emeritus
Rothenberg, David M.
Asst. Professor
Sadove, Max S.
Emeritus
Schultz, Gail
Assistant

Shulman, Morton
Professor
Shulman, Morton
Professor
Sosis, Mitchel
Asst. Professor
Stetson, John B.
Emeritus
Thomason Jr, Richard D.
Asst. Professor
Tuman, Kenneth J.
Assoc. Professor
Villaflor, Edward
Instructor
Vucicevic, Dusan
Asst. Professor
Williams, Brian David
Instructor
Wu, Dickson S.
Instructor

Biochemistry

Kuettner, Klaus*
Professor
Chair
Mattenheimer, Hermann*
Professor
Assoc. Chair
Anderson, Kenning M.*
Assoc. Professor
Arsenis, Charalampous
Visiting Professor
Bagdade, John*
Asst. Professor
Bezkorovainy, Anatoly*
Professor
Blas, Jose S.
Visit. Asst. Prof.
Casey, Larry C.
Asst. Professor
Cohen, Maynard
Professor
Cole, Ada A.
Instructor
Cole, Edmund*
Professor
Deak, Ferenc
Visit. Assoc. Prof.
Dimuzio, Michael*
Visit. Asst. Prof.
Harrison, William H.*
Professor
Hascall, Vincent C.
Visiting Professor
Hayashi, James A.*
Professor

Homandberg, Gene
Assoc. Professor
Hoskin, Francis C. G.
Professor
Huff, John P.
Asst. Professor
Isayev, Peter I.
Instructor
Kang, Kooil
Visit. Assoc. Prof.
Kimura, James H.
Visiting Professor
Knudson, Cheryl*
Asst. Professor
Knudson, Warren*
Asst. Professor
Kot, Eva
Instructor
Lenz, Mary Ellen
Instructor
Lobstein, Otto E.
Assoc. Professor
Mazzone, Theodore
Associate
Rafelson Jr, Max E.*
Emeritus
Rubenstein, Marvin
Asst. Professor
Schmid, Thomas M.*
Asst. Professor
Schumacher, Barbara
Instructor
Schwartz, David Nathan
Visit. Asst. Prof.
Shevtchenko, Valeri
Instructor
Sky Peck, Howard H.*
Emeritus
Snopko, Rose Marie
Instructor
Snopko, Rose Marie
Instructor
Tabith, Klara
Instructor
Walcz, Erzsebet
Instructor
Webster, Robert A.
Asst. Professor
Whisler, Kenneth E.*
Asst. Professor
Whisler, Walter
Professor
Williams, James M.
Asst. Professor
Zaneveld, Lourens*
Professor

* indicates that the faculty member has an appointment in The Graduate College

Cardiovascular Thoracic Surgery

Najafi, Hassan
Professor
Chair

Andersen, James H.
Associate

Davalle, Michael J.
Asst. Professor

De Laria, Giacomo A.
Assoc. Professor

Deleon, Serafin
Lecturer

Dye Jr, William S.
Emeritus

Faber, L. Penfield
Professor

Goldin, Marshall D.
Assoc. Professor

Guillory, Joel
Instructor

Heim, John A.
Instructor

Hemp, James R.
Instructor

Hunter, James A.
Professor

Ilbawi, Michel N
Lecturer

Javid, Hushang
Emeritus

Jensik, Robert J.
Professor

King, Jerry N.
Asst. Professor

Kittle, C Frederick
Professor

Kucich, Vincent
Instructor

Langford, David A.
Instructor

March, Robert J.
Instructor

Milloy, Frank J.
Assoc. Professor

Monson, David O.
Assoc. Professor

Oldfield, R Charles
Asst. Professor

Pappas, Patroklos
Instructor

Piccione, William
Asst. Professor

Roberts, Jack C.
Asst. Professor

Warren, William H.
Assoc. Professor

Weinberg Jr, Milton
Emeritus

Clinical Nutrition

Dowling, Rebecca A.
Assoc. Professor
Chair

Barry, Diana
Instructor

Betz, Eleanor
Instructor

Bezkorovainy, Anatoly
Assoc. Professor

Colaizzo, Tina Marie
Instructor

Cotner, Carol Lou
Asst. Professor

DeFoor, Lori
Instructor

Gumbel, Mary K.
Instructor

Heberlein, Tamra
Instructor

Lafferty, Linda
Asst. Professor

Pool, Ellis
Instructor

Rezabek, Karen
Instructor

Robinson, Margaret C.
Instructor

Rockway, Susie W.
Asst. Professor

Shepherd, Sandra K.
Asst. Professor

Sowa, Diane
Instructor

Storlie, Jean
Instructor

Szeluga, Debra J.
Asst. Professor

Tangney, Christine
Assoc. Professor

Wagner-Lipson, Sally
Instructor

Communication Disorders and Sciences

Meyer, Dianne H.
Asst. Professor
Chair

Bacon, Mary
Assoc. Professor

Baumgartner, John M.
Asst. Professor

Cook, Barbara S.
Associate

Defoor-Hill, Lori A.
Instructor

Drumright, Judy D.
Instructor

Gudmundsen, Gail
Associate

Hill, David
Associate

Kearns, Kevin P.
Associate

Klodd, David A.
Assoc. Professor

Klor, Barry M.
Associate

Kominsky, Perrie
Associate

Kuhnsman, Liane A.
Associate

Milianti, Franklin
Associate

Mlcoch, Anthony G.
Associate

Montgomery, Lynne D.
Instructor

Morreale, Carol L.
Associate

O'Connor, Cathleen A.
Associate

Peterson, Phyllis
Instructor

Stoioff, Madonna
Associate

Thunder, Thomas D.
Associate

Velde, Therese M.
Associate

Winkels, Kathy
Associate

Yedor, Katherine E.
Associate

Young, Carolyn V.
Associate

Community Health Nursing

Easley, Cheryl E
Assoc. Professor
Chair

Christiansen, Kathryn
Asst. Professor
Assoc. Chair

Cukr, Penelope
Asst. Professor
Asst. Chair

Anjaria, Barbara
Instructor

Appleyard, Joann
Instructor

Bobek, Christine J.
Associate

Burgess, Wendy K
Instructor

Clemmings, Linda L.
Asst. Professor

Counte, Michael
Associate

Crane, Marianna L.
Associate

Crayton, June
Associate

Daly-Gawenda, Debra A
Asst. Professor

Dunn, Kathryn J
Instructor

Fenton-Miller, Kathy
Associate

Huna-Calandra, Marcia
Instructor

Jamison, Dianne
Instructor

Johnson, Mary T.
Associate

Juhl, Helene Nyla
Asst. Professor

Kunst, Ann E
Instructor

McFolling, Sandra
Instructor

Nelson, Linda L
Instructor

Palmer, Carol M
Assoc. Professor

Pastorello, Diane
Associate

Pender, Nola
Associate

Sampson, Elaine M
Instructor

Sapala, Shirley
Asst. Professor

Schowalter, Karlene R.
Associate

Shannon, Iris
Assoc. Professor

Simons, Nadine Marie
Associate

Sommerville, Clara M.
Instructor

Tanner, Lydia
Instructor

Villwock, Michael D
Instructor

Dermatology

Malkinson, Frederick
Professor
Chair

Abensohn, Meryl K.
Asst. Professor

Bielinski, Kenneth B.
Asst. Professor

Bielinski, Stefan
Assoc. Professor

Blankenship, Marshall
Assoc. Professor

Brennan, Terry E.
Asst. Professor

Budz, Jerome
Asst. Professor

Earles, Rene M.
Instructor

Ertle, James O.
Asst. Professor

Fleming, Matthew G.
Asst. Professor

Fretzin, David M.
Lecturer

Gehlmann, Louisa M.
Asst. Professor

Kalis, John B.
Asst. Professor

Keane, John T.
Asst. Professor

Levitt, Leonard
Asst. Professor

Marschall, Stephanine F.
Asst. Professor

O'Donoghue, Marianne
Assoc. Professor
Pearson, Roger W.
Professor
Ratz, John L.
Assoc. Professor
Rosenbaum, Marjorie M.
Asst. Professor
Strohl, Lee H.
Asst. Professor
Woodbury, George R.
Assistant
Wyhinny, Patricia
Asst. Professor

Diagnostic Radiology and Nuclear Medicine

Petasnick, Jerry P
Professor
Chair
Ackerman, Laurens V
Professor
Alcorn, Franklin S.
Professor
Berlin, Leonard
Professor
Brandser, Eric A.
Assistant
Broderick, Lynn M.
Assistant
Brown, Suzanne L.
Assistant
Brunner, Michael C.
Asst. Professor
Buenger, Richard E.
Professor
Capek, Michael
Instructor
Charletta, Dale A.
Asst. Professor
Charters, John R.
Asst. Professor
Dieschbourg, Janice
Asst. Professor
Duda, Eugene E.
Assoc. Professor
Eisenstein, Matthew M.
Instructor
Epstein, Avrum J.
Instructor
Fordham, Ernest W.
Professor
Freimanis, Maija
Asst. Professor
Geremia, Glen K.
Asst. Professor
Gore, Margaret D.
Asst. Professor
Granato, David B.
Instructor
Huckman, Michael S.
Professor
Jokich, Peter M
Assoc. Professor

Jones, Ann
Asst. Professor
Kral-LaMonica,
Madonna
Instructor
Kubicka, Robert A
Assoc. Professor
Limpert, Jonathan D.
Asst. Professor
Matalon, Terence A.
Assoc. Professor
Matthew, Guy R
Assoc. Professor
Metzger, Ted
Assistant
Mintz, Ari D
Instructor
Monticciolo, Debra L
Asst. Professor
Patzik, Shayle Brian
Assistant
Rabin, David N
Asst. Professor
Raju, R. Subba
Instructor
Rayudu, Garimella V
Professor
Rosenson, Andrew Scott
Assistant
Saltiel, Armando
Assistant
Silver, Bruce A
Asst. Professor
Smith, Claire S
Professor
Turner, David A
Professor
Wang, Jin-Zhao
Asst. Professor

Family Practice

Brueschke, Erich
Professor
Chair
Schwer, William
Assoc. Professor
Assoc. Chair
Dent, Thomas
Assoc. Professor
Asst. Chair
Sherin, Kevin
Asst. Professor
Asst. Chair
Ahmed, Khalid F.
Associate
Anderson, Donald
Asst. Professor
Anderson, Philip
Professor
Andrews, Steven L.
Instructor
Anneken, Steven M.
Instructor
Atlas, Gerald D.
Asst. Professor
Baraglia, James P.
Asst. Professor

Barber, Frederick A.
Asst. Professor
Barkin, Robert
Asst. Professor
Bell, Dora Dixie
Asst. Professor
Bell, Michael M.
Instructor
Belrose, Marc
Instructor
Bennett, Donald R.
Assoc. Professor
Berndtson, Keith R.
Asst. Professor
Bhoopal, Vasireddy
Instructor
Bick, Richard H.
Asst. Professor
Blair, Kenneth M.
Asst. Professor
Bowser, Robert L.
Asst. Professor
Boyer, Robert J.
Instructor
Brant, Julius
Professor
Brown, Robert W.
Asst. Professor
Burdick, Allison L
Professor
Calabrese, Peter A.
Assistant
Camacho, Bienvenido
Associate
Cavens, Robert Lee
Instructor
Chavez, Milton C.
Assistant
Chen, Anthony L-T
Instructor
Connolly, Maureen
Instructor
Costabile, Dominic
Instructor
Cullinan, John
Instructor
Cump, Norma Gonzalez
Assistant
Currie, Robert E
Asst. Professor
Dabek, Theresa M.
Instructor
Daum, Thomas D.
Instructor
Davison, Daniel T.
Asst. Professor
De La Cruz, Marco A.
Asst. Professor
Dekker, Anthony
Lecturer
Delater, Shawn M.
Instructor
Delneky, Joyce A.
Instructor
Devitt, John J.
Assoc. Professor
Dohse, David A.
Instructor

Donnelly, Anne Marie
Assistant
Douglas, Linda O.
Asst. Professor
Drugas, Gina E.
Assistant
Elser, John Charles
Assistant
Evans-Beckman, Linda
Instructor
Feldman, Bernard
Assoc. Professor
Feldman, Paul Keith
Instructor
Ferrel, James A.
Instructor
Fischer, Tessa
Instructor
Flacco, Richard M.
Asst. Professor
Fligner, Denise J.
Asst. Professor
Flores, Esperanza
Instructor
Floyd, Gail Y.
Asst. Professor
Fried, Peter O.
Asst. Professor
Friestad, Wayne S.
Instructor
Froiland, John Lee
Asst. Professor
Geiger, Mildred L.
Asst. Professor
Geismar, Deborah
Asst. Professor
Gigante, Joseph D.
Instructor
Gillis, Mark C.
Instructor
Giordano, Joseph A.
Asst. Professor
Glick, Melvin
Instructor
Gnap, John J.
Asst. Professor
Goldberg, Gary
Instructor
Goodlatte, Joyce
Instructor
Grant, Mark
Asst. Professor
Gray, George
Asst. Professor
Grouse, Jan
Asst. Professor
Grouse, Lawrence D.
Asst. Professor
Guth, Robert W
Instructor
Hammerberg, Lucy R.
Instructor
Harding, Pauline N.
Instructor
Harter, Phillip M.
Instructor
Harwood, Robert
Asst. Professor

Lattori, Steven M. Instructor	Mansio, Dennis T. Instructor	Plunkett, Michael J. Asst. Professor	Vanderberg Dent, Susan Assoc. Professor
Leck, Robert S. Professor	Martin, Wayne S. Instructor	Ramunis, Jerry Associate	Veldman, Mark T. Assistant
Leiman, Harry Jay Instructor	Martinez, Robert Instructor	Range, Charles L. Professor	Wade, Margaret E. Instructor
Leibick, John M. Instructor	Mason, Edward L. Instructor	Renwick, Barbara A. Assistant	Wagner, Robert H. Asst. Professor
Lertz, Brian Instructor	Matheson, Craig K. Assistant	Richards, Wendy A. Assistant	Waickus, Cynthia Marie Assistant
Lickerson, Robert G. Asst. Professor	Mayerhofer, Kenneth E. Asst. Professor	Richardson, Fred, Jr. Instructor	Wainer, Gary C. Asst. Professor
Lirsch, Arthur F. Instructor	Mc Hugh, Rosemary E. Asst. Professor	Rife, Susan B. Assistant	Walsh, John J. Asst. Professor
Loman, Diane D. Asst. Professor	McCoy, James J. Asst. Professor	Rollow, William C. Asst. Professor	Watkins, Rena Instructor
Lumowiecki, Stephen R. Asst. Professor	McGinness, Catherine Instructor	Rothschild, Steven K. Asst. Professor	Watts, Risher Jr. Asst. Professor
Lunter-Smith, Daniel G. Instructor	Melnick, Garry D. Asst. Professor	Ruff, William J. Associate	Weisbart, Edmond Asst. Professor
Macobs, Christine K. Instructor	Michaels, Henry M. Assoc. Professor	Russo, Martin T. Asst. Professor	Weisberger, Lise Asst. Professor
Johnson, Gene Elvin Asst. Professor	Miller, Edwin Asst. Professor	Ryan, Norman Asst. Professor	Welsh, Brady T. Asst. Professor
Madowaki, Mark H. Assistant	Mollohan, William H. Assistant	Ryd, Wesley H. Associate	Wigder, Herbert N. Assoc. Professor
Mal, Mark P. Instructor	Mozwecz, Monica A. Instructor	Sabree, Latifah Assistant	Williams, E. Jane Asst. Professor
Malsted, Charles L. Asst. Professor	Mueller, Christine M. Assistant	Sahajpal, Surinder K. Associate	Wolff, Marcy E. Instructor
Mazaniwskyj, Lubomyra Instructor	Mueller, Kathryn L. Instructor	Samuelson, Dean C. Instructor	Wood, Joseph P. Instructor
Messel, Kenneth F. Professor	Munir, Seema Asst. Professor	Sassetti, Marian R. Instructor	Yamamoto, Leslie T. Asst. Professor
Min, Grace Yoon Assistant	Nebblett, Edwin E. Asst. Professor	Sauerberg, Steven K. Asst. Professor	Yung, Shirley Instructor
Ming, J Theodore Instructor	Nedza, Susan M. Instructor	Saxon, Leonard T. Professor	Zielinski, Dorothy A. Asst. Professor
Mnox, Timothy Instructor	Nelson, Delburt H. Asst. Professor	Schaffer, Randall R. Assistant	Zimmerman, J.C. Chava Asst. Professor
Mornblatt, Brian J. Asst. Professor	Nelson, Glenn E. Asst. Professor	Shufeldt, John J. Instructor	Zitter, Robert E. Asst. Professor
Mrohm, Carol Asst. Professor	Nelson, Kenneth S. Asst. Professor	Simoton, Ronald L. Instructor	
Muckmeyer, Warren G. Instructor	Nelson, William J. Asst. Professor	Smith, Gregory E. Instructor	
Mothe, Joseph L. Associate	Neudorf, Howard Instructor	Stanton, Gerald V. Associate	
Mang-Carney, Mary Asst. Professor	Newman, Julius S. Asst. Professor	Stuck, Gary D. Asst. Professor	
Marson, Beth E. Instructor	Neybert, Hilary F. Instructor	Suchy, Vladimir Associate	
Mazar, Aaron J. Instructor	O'Neill, Hugh Michael Asst. Professor	Talbert, Ellis Instructor	
Memberger, Terrence Instructor	Orgain, Javette C. Instructor	Taylor, Douglas W. Asst. Professor	
Mipkin, Julie Instructor	Parisi, Bruce A. Instructor	Thomas, Sharon Y. Instructor	
Mocke, Susan Instructor	Paul, Harry A. Associate	Thompson, Walter C. Instructor	
Mofgren, Katharine A. Asst. Professor	Pavlatos, Andrew M. Instructor	Tomeo, Jay Instructor	
Mopez, Carolyn C. Asst. Professor	Pearson-Mc Creary, B. Instructor	Turek, Louis H. Asst. Professor	
Mord, Richard W. Assistant	Perlow, Bruce Allen Assistant	Tyler, Lamont A. Instructor	
Mutkus, Edward R. Instructor	Perlow, Tamar Assistant	Uchitelle, Robin Instructor	

General Surgery

Economou, Steven G. Professor Chair
Abcarian, Herand Lecturer
Ackley, William O. Associate
Aduss, Howard Professor
Akers, Paul T. Asst. Professor
Alder, Gary F. Asst. Professor
Anderson, Jeffrey E. Asst. Professor
Armstrong, Robert Assistant
Barr, Sanford L. Instructor
Barroso, Eduardo G. Assistant
Bines, Steven Asst. Professor

Faculty by Department

Bonick Jr, James F. Asst. Professor	Flanigan, Robert M. Visit. Asst. Prof.	Lemons, James A. Emeritus	Rosenthal, Stephen Instructor
Bosack, Robert C. Instructor	Foster, Preston F. Assistant	Loeff, Deborah S. Associate	Rosett, Phillip Asst. Professor
Boyd, Kevin L. Instructor	Fredland, Allan J. Instructor	Marchmont-Robinson, H. Instructor	Rothchild, John A. Asst. Professor
Braxton, Jeffrey M. Assistant	Frymark, William B. Instructor	Maganini, Robert O. Instructor	Saclarides, Theodore Asst. Professor
Caldwell, Richard G. Asst. Professor	Gebel, Howard M. Assoc. Professor	Marshall, J Stephen Instructor	Saleh, Daniel Assistant
Cannon, Joseph P. Professor	Gelman, Clifford Lee Assistant	Martirano Jr, Michael Associate	Sanborn, Earl Boyce Asst. Professor
Cerinich, Melanie Anne Assistant	Gilchrist, R Kennedy Emeritus	Matheson, Michelle Asst. Professor	Sandrolini, James A. Asst. Professor
Chong, Kwanho Instructor	Guynn, Vernon L. Asst. Professor	McCarthy, William G. Asst. Professor	Sankary, Howard Asst. Professor
Christensen, Eldis M. Asst. Professor	Haklin, Michael F. Lecturer	McDonald, Gerald Visit. Asst. Prof.	Sarah, Barbara Assistant
Claman, Maurice A. Asst. Professor	Haley, Ronald G. Asst. Professor	McErlean, Jeffrey A. Instructor	Seed, Randolph W. Asst. Professor
Cole, Warren H. Emeritus	Haralampopoulos, Harry Associate	McMillan, Foster L. Emeritus	Shearon, Kenneth Emeritus
Coleman, James E. Assistant	Hart, Marquis E. Instructor	Merkel, Frederick K. Assoc. Professor	Shorey, William D. Assoc. Professor
Coon IV, John S. Asst. Professor	Hayes, Mary J. Instructor	Merlotti, Gary J. Asst. Professor	Slaby, James A Instructor
Dallessandro, Alan Instructor	Herwick, Paul Q. Instructor	Millikan, Keith W. Asst. Professor	Snyder, Leonard Instructor
Davis Jr, Carl B. Emeritus	Holmes, William H. Emeritus	Montana, Louis Ciaccia Instructor	Solmos Jr, Gene Rober Associate
Davis, John Scott Assistant	Hopkins, William M. Asst. Professor	Nathan, John E. Visit. Asst. Prof.	Sonego, Nancy Gail Assistant
Delaney, Paul Instructor	Horberg, David Asst. Professor	Nicholas, Everett E. Assoc. Professor	Southwick, Harry W. Emeritus
Dehaan, Michael R. Instructor	Howser, John W. Assoc. Professor	Norman, Earl M. Instructor	Staren, Edgar Asst. Professor
Dejong, Steven A. Asst. Professor	Hsu, Wade Instructor	O'Halloran, Kevin L. Assistant	Stec, Paul M Instructor
Demange, Gilbert R. Associate	Jamieson, Robert W. Lecturer	Olwin, John H. Emeritus	Stephens, Alan L. Assistant
De Peyster, Frederic Emeritus	Jensik, Stephen C. Asst. Professor	Paskill, Joseph W. Instructor	Stohle, Michael R. Instructor
Deziel, Daniel J Assoc. Professor	John, Robert B Asst. Professor	Paul, Harold A. Assoc. Professor	Straus, Albert K. Asst. Professor
Diffenbaugh, Willis G. Emeritus	Johnson, Frank R. Emeritus	Petty, David T. Associate	Sullivan, Richard M. Instructor
Dimiceli, Salvatore A. Assistant	Kacey, Daniel Instructor	Pomerantz, Marc A. Asst. Professor	Swordlow, Arnold B. Asst. Professor
Dominguez, Jose M. Assistant	Kapusta, George R. Asst. Professor	Prince, Clifford Instructor	Tanck, Erik N Assistant
Doolas, Alexander Professor	Kelleher, Leon R. Asst. Professor	Pucci, Rita Asst. Professor	Templeton, Kimberly J Assistant
Douglas, Gilbert W. Asst. Professor	Kelly, Michael E. Instructor	Radhakrishnan, Jayant Associate	Tiesenga, Marvin Asst. Professor
Dwan, Francis Associate	Kind, Gabriel M. Instructor	Richards, John W. Instructor	Vallina, Van Asst. Professor
Ertl, John W. Associate	King, Donald G. Assistant	Reisberg, David J. Associate	Williams, James W. Professor
Fell, Egbert Emeritus	Kluiber, Rudolph M. Instructor	Roberg, O Theodore Emeritus	Witkowski, Leon J. Emeritus
Feimer, Peter P. Asst. Professor	Krueger, Barbara L. Assistant	Rodriguez, Juan A. Emeritus	Witkowski, Robert Instructor
Feole, John B. Assistant	Lawrence, Arthur G. Assoc. Professor	Rohrer, David A. Instructor	Witt, Thomas R. Asst. Professor
Figueroa, Alvaro Asst. Professor	Lawton, Stanley E. Emeritus	Roseman, David L. Professor	Woodard, David O. Instructor
Firfer, Harold S Asst. Professor	Lee, Trusten P Instructor	Rosen, Robert S. Asst. Professor	Wool, Norman L Asst. Professor

Gerontological Nursing

Le Sage, Joan
Assoc. Professor
Chair
Rubin-Terrado, Marilyn
Instructor
Asst. Chair
Andreoli, Kathleen
Professor
Bronin-Stubbs, Diane
Professor
Hall, Carol J.
Associate
Davis, Nancy Lynn
Instructor
Di Filippo, Judith A.
Instructor
Drugay, Marge
Associate
Duros-Silber, June
Associate
Foreman, Marquis D.
Associate
Jokbudak, Helen
Associate
Latton, Jean
Associate
Lendra, Dorothy
Instructor
Lenton, Lorry
Associate
Lopanke, Daniel J.
Instructor
Lrpan, Jennifer A.
Associate
Lamb, Karen
Instructor
Meyer, Nancy
Associate
Moore, Janet Silliman
Professor
Reid, Constance
Associate
Roberts, Kathryn
Associate
Rogers, Jill K.
Instructor
Roth, Sharon B.
Instructor
Simental, Lilia
Instructor
Sivertsen, Lynn
Asst. Professor
Steinbach, Pamela T.
Associate
Tordecilla, Lydia
Instructor
Walton, Jane
Instructor
Wisby, Marian
Associate
Yosko, Kathleen
Associate

Health Systems Management

Butler, Peter W.
Assoc. Professor
Acting Chair
Aardsma, Allen H.
Instructor
Barhyte, Diana Young
Asst. Professor
Bartolotta, Ann
Instructor
Bass, Gordon
Asst. Professor
Behner, Kathleen G.
Instructor
Bernat, John
Asst. Professor
Bishop, Jacqueline J.
Instructor
Bliss, David F.
Instructor
Block, Lenn
Asst. Professor
Brown, Max Douglas
Assoc. Professor
Buck, Tracy
Instructor
Campbell, Bruce C.
Associate
Carollo, Jack R.
Instructor
Cirone, Marianne W.
Instructor
Counte, Michael
Assoc. Professor
Currie, Andrew G.
Instructor
Douglass, Paula
Asst. Professor
Dowling, Rebecca A.
Asst. Professor
Enzbrenner, Laura
Associate
Esmond, Truman H.
Asst. Professor
Fine, Allan
Associate
Forgue, Ruth
Instructor
Frankenbach, James T.
Asst. Professor
Garber, Sheldon
Asst. Professor
Glandon, Gerald L.
Assoc. Professor
Good, Robert C.
Instructor
Hahn, Jerome J.
Asst. Professor
Hejna, William F.
Professor
Hill, James P.
Asst. Professor
Hinrichs, Bradley
Asst. Professor

Hodo, Linda
Instructor
Holloman, Karen
Asst. Professor
Howard, Diane M.
Asst. Professor
Jansen, Carol-Lynn
Instructor
Jaworski, Stanley D.
Asst. Professor
Jelinek, Richard C.
Associate
Jendro, Thomas A.
Asst. Professor
Kaatz, Gary E.
Asst. Professor
Kaatz, Tina M.
Asst. Professor
Kantutis, Connie A.
Instructor
Keers, Suzanne
Instructor
Kempinski, Paul
Instructor
Kilburg, Susan
Instructor
Knepper, Greg
Asst. Professor
Knight, Russell M.
Associate
Kovel, Barbara A.
Asst. Professor
Kuehn, Julianne M.
Instructor
Lepper, Mark H.
Associate
Lerner, Wayne M.
Associate
Lewandowski, Robert
Asst. Professor
Limperis, Chris E.
Instructor
Lintjer, Gregory W.
Instructor
Lippner, Lewis A.
Associate
Loevy, Sara Segal
Associate
Lourie, Lois A.
Instructor
Mallett, Gordon M.
Instructor
Mc Gann, Dennis M.
Instructor
Miller, Avery S.
Instructor
Mon, Donald T.
Instructor
Montgomery, Lynne D.
Instructor
Muir, Richard
Instructor
Necas, Kevin J.
Asst. Professor
Newman, J. Christopher
Asst. Professor
Nichols, Jack L.
Asst. Professor

Oder, Donald R.
Professor
Odwazny, Richard S.
Asst. Professor
Oleske, Denise M.
Asst. Professor
Perret, Beverly
Instructor
Pierpaoli, Paul G.
Asst. Professor
Proko, Thomas J.
Instructor
Reiner, Yvette M.
Instructor
Rice, David J.
Instructor
Riehs, Steven
Asst. Professor
Roach, Donna M.
Instructor
Robertson, Sandra B.
Instructor
Robinson, Alphonso L.
Instructor
Rose, William H.
Instructor
Sandrick, Edward
Instructor
Seim, Sandra K.
Instructor
Serxner, Brant A.
Instructor
Shannon, Iris
Assoc. Professor
Shapiro, Roberta J.
Instructor
Shindollar, Joyce
Instructor
Shirey, Richard
Instructor
Short, John J.
Asst. Professor
Shum, Norine
Instructor
Sietsema, Dale A.
Associate
Sinioris, Marie E.
Assoc. Professor
Sochacki, Stacy L.
Asst. Professor
Soja-Skiem, Richele A.
Associate
Taylor, Glenn C.
Instructor
Terman, Mari D.
Asst. Professor
Thompson, Lee D.
Asst. Professor
Trufant, John E.
Assoc. Professor
Venzon, Michael A.
Associate
Volek, Paul
Asst. Professor
Warden, Gail L.
Associate
Webb, John R.
Instructor

Weiser, Stephen J.
Associate
Weisman, Nancy E.
Instructor
Wellman, William L.
Asst. Professor
Whitaker, Ronald H.
Instructor
Whitney, Carolyn
Instructor
Zaremski, Miles J.
Instructor
Zieserl, Robert M.
Asst. Professor

Immunology/ Microbiology

Gewurz, Henry *
Professor
Chair
Akhtar, Naveed
Assistant
Bonnin, Arturo J.
Assistant
Boyer, Kenneth M.
Assoc. Professor
Braun, Donald
Assoc. Professor
Bremer, Eric
Asst. Professor
Chudwin, David S.
Asst. Professor
Clardy, Christopher W.
Asst. Professor
Coon IV, John S.
Asst. Professor
Dougherty, Terence J.
Visit. Assoc. Prof.
Finnegan, Alison *
Asst. Professor
Gebel, Howard M. *
Assoc. Professor
Gewurz, Anita *
Asst. Professor
Golden, Harvey E *
Asst. Professor
Goodman, Larry *
Assoc. Professor
Harris, Dorothy E.
Asst. Professor
Harris, Jules E
Professor
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Hyde, John S
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Kaizer, Herbert *
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Kessler, Harold A
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Landay, Alan
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Asst. Professor
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Asst. Professor
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Zeller, Janice M. *
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Internal Medicine

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Abraham, Clara
Assistant
Abrahamian, Frida P.
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Abramowitz, Bruce
Asst. Professor
Abrams, Lisa I.
Assistant
Abrams, Richard I.
Assistant
Adler, Solomon
Professor

Agee, Kimberly R.
Assistant
Agruss, Neil
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Alderman, Sarah M
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Aleman, Marco A.
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Anagnos, John
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Andina, Robert J.
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Armbruster, Kent
Instructor
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Instructor
Aruguete, Christine M.
Instructor
Aruguete, Jose
Instructor
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Instructor
Bagdade, John
Professor
Baker, Elizabeth
Instructor
Balandrin, Jorge E.
Instructor
Baldinger, Michael
Instructor
Baldwin Jr., David
Assoc. Professor
Baldwin Sr., David
Professor
Balk, Robert A.
Assoc. Professor
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Assistant
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Asst. Professor
Baron, John W
Asst. Professor
Barron, John T
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Bartels, Stephanie A.
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Bartlett, Robert
Visit. Assoc. Prof.
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Becker, Frank O.
Assoc. Professor

Bell, Peter
Instructor
Bensen, Richard D.
Assistant
Benson, Constance
Asst. Professor
Benson, Eric P.
Assistant
Berger, Barry W.
Instructor
Bernsen, Mitchell B.
Assistant
Bertsch, Mary Jo
Asst. Professor
Bessel, Marjorie Jo
Assistant
Betman, Shelly L.
Assistant
Bijari, Armita
Assistant
Billhardt Jr, Roger A.
Asst. Professor
Blaauw, Bernard B.
Asst. Professor
Blair, Andrew Thomas
Assistant
Block, Joel A.
Asst. Professor
Bloom, Irving
Instructor
Blue, Mark G.
Asst. Professor
Blumberg, Martin B.
Assistant
Bohan, John Lynch
Asst. Professor
Bolton, Cornelius F.
Asst. Professor
Bolton, Edmund
Asst. Professor
Bone, Roger C.
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Bonomi, Philip D.
Assoc. Professor
Boyajian, Charles
Instructor
Brandt, Timothy D.
Instructor
Braun, Donald
Assoc. Professor
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Instructor
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Asst. Professor
Brown, Marie T.
Asst. Professor
Brown, Michael D.
Asst. Professor
Brown, R Gordon
Emeritus
Brown, William C.
Asst. Professor
Buder, Alex
Instructor

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Iurstein, David M. Assistant	Conway, Terrence Asst. Professor	Ellis, Lisa C. Assistant	Garcelon, Ann Instructor
Iutler, Paula R. Instructor	Crawford, Paul W. Instructor	Ellison, Maceo Asst. Professor	Garr, William R. Associate
Iampbell, David R. Assistant	Cruz, Sidney R. Associate	Erlenborn, James Instructor	Gasteyer, Theodore Asst. Professor
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Iarpenter, Lowell D. Associate	Dampier, Mary F. Asst. Professor	Ezri, Marilyn Asst. Professor	Gdalmio, Louis Emeritus
Iarter, Kevin-Anthony Assistant	Danko, Henry Asst. Professor	Fagan, Kathleen M. Instructor	Geringer, Charles E. Instructor
Iarton, Robert Emeritus	Davidson, Michael H. Asst. Professor	Farbstein, Samuel A. Instructor	Germino, Wilford Instructor
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Iatellani, Constance Asst. Professor	Davis, Andrew M. Asst. Professor	Felix, Robert E. Asst. Professor	Gertzen, Joyce Instructor
Iavanaugh, Stephanie Asst. Professor	Davis, Leon N. Assistant	Finnegan, Alison Asst. Professor	Gewurz, Henry Professor
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Ihase, Robert A. Instructor	DeLeo, Caesar A. Asst. Professor	Fisher, Raymond L. Instructor	Giuffre, Verlin W. Instructor
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Iitronberg, Robert J. Assistant	Diamond, Terrence P. Instructor	Frank, Judith Ellen Assistant	Gonis, Demetrios Instructor
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Herman, Gail D. Instructor	Jares III, Joseph J. Instructor	Klinger, Alfred D. Associate	Leven, Robert M. Asst. Professor
Hernandez, Beatrice M. Instructor	Jeffery, Rosemarie M. Asst. Professor	Kmicikewycz, Alexander Instructor	Levin, Joel M. Asst. Professor
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Hess, Steve A. Instructor	Jones, Jerry Lynne Instructor	Knott Jr, A Paul Instructor	Levitsky, Shari E. Assistant
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Hines, David W. Instructor	Kahn, GERALYNN Instructor	Korenblit, Allen D. Asst. Professor	Liao, Thomas E. Instructor
Hoeltgen, Thomas M. Asst. Professor	Kahn, GERALYNN Instructor	Kotin, Anthony M. Asst. Professor	Liebson, Philip R. Professor
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Hollins, Edwin E. Instructor	Kallick, Charles Asst. Professor	Krause, Philip B. Assistant	Lisowski, Jeffrey M. Assistant
Honasoge, Ananth Instructor	Kaplan, Edward H. Asst. Professor	Kroger, Elliott Asst. Professor	Longo, Kathleen Instructor
Hoshizaki, Robert J. Instructor	Kark, Robert M. Distinguished Prof.	Kulis, John C. Associate	Lootens, David A. Instructor
Howard, Kenneth M. Instructor	Karrel, Richard Asst. Professor	Kuzin, Lanis L. Instructor	Lubens, Jonathan Mart Instructor

ubin, Niva M. Instructor	Meyer, John E. Instructor	Northrop, Gretajo Assoc. Professor	Polychronopoulos, Sote Instructor
ucero, Roger A. Instructor	Meyer, John H. Associate	Novotny, Nancy R. Instructor	Pomerantz, Rhoda S. Assoc. Professor
uskin, Allan T. Assoc. Professor	Meyer, William N. Instructor	O'Bannon, Linda C. Instructor	Ponsiglione, John D. Asst. Professor
lacLeod, Catherine M. Asst. Professor	Meyers, Steven Lee Assistant	O'Brien, John F. Asst. Professor	Popper, Michael S. Asst. Professor
larbach, Walter J. Instructor	Michael, Belmina Nercy Associate	O'Donoghue, J. Kevin Asst. Professor	Port, Jeffrey H. Instructor
largules, Kenneth R. Instructor	Miller, Debbie L. Instructor	Odland, Blair Instructor	Pottage Jr, John Asst. Professor
larinelli, Antony Asst. Professor	Miller, Elinor Instructor	Okner, Joel C. Instructor	Preston, Adrienne L. Assistant
larkey, William S. Asst. Professor	Mitchanis, Mary Ellen Assistant	Olson, Bruce A. Asst. Professor	Principe, John Instructor
larkovitz, David Instructor	Moline, Bryan G. Instructor	Orlowski, Janis M. Instructor	Radnitzer, Crystal D. Instructor
lartin, John E. Assoc. Professor	Moon, Byong H. Asst. Professor	Overton, Mark H. Asst. Professor	Rae, Carolyn F. Instructor
lartin, Michael Instructor	Moore, Kenneth L. Instructor	Palmer, Scott B. Instructor	Rahn, Ada Instructor
lartinez, Charles J. Asst. Professor	Moore, Wm. Aubrey Asst. Professor	Panitch, Silvia Z.V. Instructor	Raines, Dale S. Assoc. Professor
larwah, Birinder S. Instructor	Morgan III, J. David Assistant	Papernik, Morris Instructor	Raines, Robert A. Instructor
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lassey, Patrick Baber Instructor	Moy, James N. Asst. Professor	Parsons, Robert Visit. Asst. Prof.	Range, Charles L. Assoc. Professor
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lattox, Suzanne P. Assistant	Muehrcke, Robert C. Professor	Pavlovic, Thomas Associate	Razma, Antanas G. Instructor
layer, Robert S Assistant	Mueller, Rudolph J. Asst. Professor	Payne, John A. Assoc. Professor	Reed, Byron Instructor
lazzone, Theodore Assoc. Professor	Murlas, Christopher G. Assoc. Professor	Perez, Andrew A. Instructor	Reed, William R. Instructor
lc Cormick, Alice Instructor	Murphy, Patrick B. Instructor	Peterson, Arthur R. Associate	Reese, Thomas C. Instructor
lc Cormick, Patrick J. Instructor	Murray, Joan C. Assistant	Petrak, Richard A. Assistant	Regal, Edward M. Asst. Professor
lc Creary, Patricia A. Assoc. Professor	Murray, Linda R. Instructor	Petrak, Russell M. Asst. Professor	Reid, Robert H. Asst. Professor
lc Kenna, William W. Asst. Professor	Muscarello, Vincent Instructor	Petropoulos, A. Tom Instructor	Reiner, Yvette Asst. Professor
lc Leod, Bruce C. Assoc. Professor	Neal, Richard H. Assoc. Professor	Phaneuf, Joseph D. Instructor	Reiter, Mark Instructor
lcLaughlin, Margaret Asst. Professor	Negin, Noel D. Associate	Phelan, John M. Instructor	Reynolds, Albert Instructor
lcGinnis, Patrick L. Instructor	Neill, William A. Professor	Phelan, William H. Assoc. Professor	Richman, Carol M. Assoc. Professor
lc Millan, J. Charles Emeritus	Nelson, Bertram Emeritus	Piazza, Susan J. Instructor	Richmond, G. Wendell Asst. Professor
ledenis, Vidvuds Asst. Professor	Nelson, Jeffrey A. Asst. Professor	Pierce-Rhoads, Mila I. Distinguished Prof.	Ries, Michael Asst. Professor
lehra, Anju Instructor	Neu, Jeffrey Assistant	Pineless, Gary R. Instructor	Riff, Donald P. Asst. Professor
leredith, Paul A. Emeritus	Newman, Julius S. Asst. Professor	Plate, Charles A. Visiting Professor	Riker, Lauren P. Instructor
lernel, Frederick K. Assoc. Professor	Nickelson, Kim R. Instructor	Plate, Janet Professor	Ritter, Mary C. Instructor
erwick, Patricia A. Asst. Professor	Nolan, A Clark Asst. Professor	Plotnick, Bennett H. Instructor	Roberg, Norman B. Emeritus
nesser, Joseph V Professor	Nootens, Mark T. Assistant	Pobanz, Donovan M. Associate	Rodby, Roger Asst. Professor

Rodriguez, E. Rene Asst. Professor	Saxon, Leslie A. Assistant	Sittler, Stephen S. Asst. Professor	Tarun, Donald Emeritus
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Rosenberg, Alan S. Instructor	Scheetz, Annette A. Instructor	Skul, Vesna Instructor	Teplitz, Eric Instructor
Rosenberg, Marvin S. Assoc. Professor	Schick, Armin F. Emeritus	Slodki, Sheldon Assoc. Professor	Thomas, Charles Richard Assistant
Rosenberg, Michael I. Instructor	Schick, Vernon F. Emeritus	Smith, Earl C. Assoc. Professor	Thompson, Ray E. Asst. Professor
Rosenberg, Neil Instructor	Schieber, Scott R. Instructor	Snapp, Marshall Associate	Thomson, Andrew Assoc. Professor
Rosenblate, Howard Asst. Professor	Schlesinger, Marc L. Instructor	Snell, R. Jeffrey Instructor	Thomson, Cameron Instructor
Rosenblum, Joseph Instructor	Schnitzer, Thomas J. Professor	Snopko, Rose Marie Asst. Professor	Timm, Stuart Instructor
Rosenblum, Leigh E. Asst. Professor	Schoenberger, James A. Professor	Sobin, W Harley Instructor	Timmons, John A. Instructor
Rosenbush, Stuart Asst. Professor	Schoenfeld, Paul M. Asst. Professor	Sokalski, Steven J. Visit. Asst. Prof.	Trenholme, Gordon M. Professor
Rosenson, Robert S. Asst. Professor	Schraufnagel, Mary N. Instructor	Sokany, Nancy M. Assistant	Trubitt, Mitchell J. Asst. Professor
Roskelley, Rigby C. Emeritus	Schuessler, Roger R. Asst. Professor	Sokol, Norton M. Asst. Professor	Trusewych, Timothy B. Instructor
Rosman, Joseph K. Asst. Professor	Schupp, Elizabeth A. Assistant	Solliday, Norman H. Instructor	Tucker, W Randolph Assoc. Professor
Rossof, Arthur H. Assoc. Professor	Schwartz, Douglas B. Asst. Professor	Somberg, Alvin Asst. Professor	Twiss, Alston C. Emeritus
Rotenberg, Morrey L. Instructor	Schwartz, Maurice A. Assoc. Professor	Spear, Gregory T. Asst. Professor	Tyszka, Thomas S. Asst. Professor
Rowan, Daniel Anthony Associate	Schwartz, Theodore B. Emeritus	Staats, David O. Asst. Professor	Uretz, Eugene F. Asst. Professor
Roy, Shirley A. Asst. Professor	Schwartzman, William A. Instructor	Stachowski, Michael M. Instructor	Valentino, Leonard A. Asst. Professor
Rubin, David B. Assoc. Professor	Scupham, William K. Asst. Professor	Stanley, Robert E. Instructor	Van Valen, Phebe Lecturer
Rubin, Diane Linda Instructor	Segreti, John Asst. Professor	Stavinga, Ronald F. Asst. Professor	Vanderlaan, Burton F. Instructor
Rubino, Domenica Marie Associate	Semel, Jeffrey D. Asst. Professor	Stavrakos, Charalambos Instructor	Vercelli, Kenneth Assistant
Ruggie, Neal T. Asst. Professor	Sha, Beverly E. Assistant	Stein, Robert N. Asst. Professor	Veres-Thorner, C. Asst. Professor
Russell, Hugh D. Instructor	Shallat, Charles H. Asst. Professor	Steinecker, Gary A. Asst. Professor	Vidinli, Mustafa Instructor
Russell, Patricia L. Assistant	Sheridan, Patrick Instructor	Steinecker, Patricia H. Asst. Professor	Walker, Valerie C. Assistant
Ryan, Will G. Professor	Shewmake, Floyd Associate	Stemer, Alexander A. Asst. Professor	Walraven, Ellen S. Instructor
Rydel, James Joseph Assistant	Shiomoto, Gail M. Associate	Stone, Arvey M. Asst. Professor	Walsh, Patricia A. Instructor
Saavedra, Richard A. Assoc. Professor	Short, Ronald M. Instructor	Strauss, Lynn M. Instructor	Wang, Benjamin J. Asst. Professor
Sabatinos, Julie M. Instructor	Showel, John L. Assoc. Professor	Strick, Creighton C. Associate	Waskin, Hetty Anne Instructor
Sabesin, Seymour Professor	Siegfried, J David Instructor	Sugimoto, Danny H. Instructor	Waxman, Jordan Asst. Professor
Salzman, Gary H. Asst. Professor	Siglin, Martin G. Asst. Professor	Sullivan, James F. Assistant	Weaver, Denise Cecile Assistant
Santucci, Barbara Asst. Professor	Silver, Michael Asst. Professor	Szeluga, Debra J. Asst. Professor	Weidman, Stuart W. Professor
Sarpolis, Keith Instructor	Simon, Gerald J. Instructor	Szeto, Caroline Instructor	Weinstein, Karen B. Instructor
Sassetti, Richard J. Assoc. Professor	Simpson, Steven Q. Asst. Professor	Taber, Mark D. Instructor	Weir, Terrie Lynn Assistant
Saulters, Robert L. Instructor	Sipkins, James H. Instructor	Tamragouri, Ravikiran Instructor	Weisberg, Mitchell R. Assistant

Weiss, Raymond P.
Instructor
Weller, Herschel
Instructor
Weller, Herschel
Instructor
Westerman, Maxwell P.
Professor
Wilcox, Kenneth
Instructor
Williams, James M.
Asst. Professor
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Asst. Professor
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Yellen, Steven F.
Instructor
Zallik, Ned I.
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Zeiger, Howard L.
Instructor
Zeitz, Howard J.
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Zelinger, Allan B.
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Ziarko Jr, Mitchell
Instructor
Zoldan, Jack
Instructor

Maternal Child Nursing

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Slack, Jeanne
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Challberg, Carol
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Instructor
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Instructor
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Instructor
Hagele, Jane
Instructor
Heneghan, Kathleen
Instructor
Jacobi, Angela
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Asst. Professor
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Instructor
Mueller, Laura
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Instructor
Pacholski, Catherine
Instructor

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Medical Nursing

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Klingelsmith, Mary
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McHale, Marnie
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Minton, Paula
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Quinn, Lauretta
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Salomon, Catherine
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Medical Technology and Perfusion Technology

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Bertuzis, Rasa
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Bishop, Catherine L.
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Dianda, Jeanne
Instructor
Forster, Cornelius A.
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Ho, Li O.
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Hoiberg, Ronald B.
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Killingsworth, Deborah
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Mets, Marilyn
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Goldflies, Mitchell L.
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Hillgren, Nancy J.
Assistant
Howey, Diane D.
Instructor
Hsia, Linda
Instructor
Hutchinson, Janice
Instructor
Hyde, John S
Professor
Israel, Jeannette
Asst. Professor
Ivey, Carl L
Asst. Professor
Jackson, Cheryl L.
Instructor
Johnson, Frank R.
Assoc. Professor
Jones, Elizabeth C.
Asst. Professor
Jordan, Robert A.
Instructor
Joyce, Cathy Lynn A.
Assistant
Kaizer, Herbert
Professor
Kallick, Charles
Assoc. Professor
Kaltman, Jerome
Asst. Professor
Kapral, Jane
Instructor
Kaye, Bennett A.
Asst. Professor

Kaye, Celia
Visit. Assoc. Prof.

Kazlauska, Theresa
Instructor

Keith, L.E.
Assoc. Professor

Kendrick, Alfred E.
Asst. Professor

Kiley, R James
Asst. Professor

Kindrachuk, William
Asst. Professor

Kirrin, Alex J.
Instructor

Klodd, David A.
Asst. Professor

Koinis, Kostas E.
Associate

Kramer, Jane E.
Asst. Professor

Kreiter, Mary L.
Asst. Professor

Lamprecht, Catherine
Asst. Professor

Lev, Maurice
Distinguished Prof.

Levy, Howard B.
Assoc. Professor

Levy, Jerre
Visit. Assoc. Prof.

Levy, Richard A.
Asst. Professor

Lewis, Mary
Instructor

Limp, Charles
Asst. Professor

Lim, Diosdado
Visit. Assoc. Prof.

Lipton, Meryl E
Asst. Professor

Luken, Julie A.
Associate

Lukens, Abbie R.
Asst. Professor

Martin, Patrick T.
Instructor

Mead, John D.
Asst. Professor

Melyn, Michelle
Asst. Professor

Mercer, Jeanne K.
Asst. Professor

Merchant, Zarina I.
Instructor

Mets, Marilyn
Instructor

Miller, Robert A.
Visiting Professor

Moll, Keith J.
Assistant

Moy, James N.
Asst. Professor

Mueller, Paul L.
Assoc. Professor

Nathan, John E.
Visit. Asst. Prof.

Nell, Patricia A.
Asst. Professor

Nelson, Karen B.
Asst. Professor

Nelson, Michael N.
Assoc. Professor

O'Brien, Catherine A.
Instructor

Pachman, Daniel James
Emeritus

Page El, Edward
Assoc. Professor

Patel, Hemendra
Instructor

Peters, Bruce
Instructor

Pierce-Rhoads, Mila I.
Emeritus

Porter, Kenneth B.
Instructor

Proteau, Roseanne V.
Asst. Professor

Puc, Frank C
Asst. Professor

Quinones, Jose A.
Instructor

Rao, Sripathy
Associate

Ratajik, Alyda R.
Asst. Professor

Richtsmeyer, A. J.
Asst. Professor

Rosenthal, Ira M.
Professor

Saad, Nadra B.
Instructor

Sanchez, Jerry
Instructor

Santucci, Barbara
Assoc. Professor

Savage, Judith G.
Instructor

Savage, Teresa A.
Instructor

Schapiro, Joseph S.
Instructor

Scimecca, Rae L.
Instructor

Serratto-Benvenuto, M.
Associate

Sheldon, Stephen H.
Visiting Professor

Shmigelsky, Irene
Emeritus

Shorr, Gail Joyce
Asst. Professor

Shulruff, Reeve N.
Instructor

Siegel, Sandra C.
Instructor

Silvestri, Jean M.
Asst. Professor

Slivnick, Barbara Yate
Asst. Professor

Smith, Joyce M.
Asst. Professor

Soglin, David F.
Asst. Professor

Spaeth, Ralph
Emeritus

Speed, Curtis L.
Instructor

Stamat, Nicholas S.
Instructor

Starsiak, Diane L.
Instructor

Stine, Robert H.
Associate

Strokosch, Gary R.
Assoc. Professor

Strzembosz, Patricia
Instructor

Swarts, Charles L.
Assoc. Professor

Tapia, Sakina S.
Instructor

Trubow, Leslie N.
Asst. Professor

Valentino, Leonard A.
Asst. Professor

Velada, Pedro I.
Associate

Vercoe, James L.
Asst. Professor

Vogel, Lawrence C.
Asst. Professor

Volin, Beth
Asst. Professor

Wall, Timothy R.
Asst. Professor

Wanczyk, Teresa
Instructor

Ward, Mark A.
Asst. Professor

Weese-Mayer, Debra
Assoc. Professor

Weis, Ernest M
Asst. Professor

Weiss, Gerald E
Instructor

Weiss, Mark S.
Instructor

White, Donald R.
Instructor

Williams, Mavis T.
Instructor

Wirtshafter, Robert
Asst. Professor

Zuckerman, Victor
Instructor

Zurbrugg, Jo B.
Asst. Professor

Pharmacology

Frischer, Henri *
Professor
Acting Chair

Barkin, Robert
Asst. Professor

Bennett, Donald R.
Assoc. Professor

Carvey, Paul *
Asst. Professor

Ebersman, Donald S. *
Professor

Ecanow, Bernard *
Visit. Professor

Fitzsimmons, William E.
Asst. Professor

Gdallman, Louis
Emeritus

Goetz, Christopher
Asst. Professor

Javaid, Javaid I.
Asst. Professor

Klawans, Harold *
Professor

MacLeod, Catherine M. *
Asst. Professor

McCarthy, Robert J
Instructor

Moon, Byong H *
Assoc. Professor

Nootens, Raymond H.
Asst. Professor

Nora, Maris V. *
Asst. Professor

Parkhurst, George W. *
Asst. Professor

Pierpaoli, Paul G. *
Professor

Prancan, Arthur *
Assoc. Professor

Rieckmann, Karl H. W.
Visiting Professor

Stein, Zepahniah
Instructor

Trenholme, Gordon M. *
Assoc. Professor

Physical Medicine & Rehabilitation

Nicholas, John Jeffrey
Professor
Chair

Adair III, William A.
Asst. Professor

Amstutz, Diane K.
Asst. Professor

Bonfiglio, Richard P.
Asst. Professor

Cameron, Jeffrey
Asst. Professor

Chaudhuri, Gouri
Asst. Professor

Erwin, James H.
Asst. Professor

Flimlin, Mary T.
Assistant

Kaiser, James A.
Assistant

Kanis, Lorraine J.
Instructor

Latash, Mark
Asst. Professor

Maragos, Valerie A.
Asst. Professor

Mc Carron, Edward J.
Asst. Professor

Neyman, Ida
Asst. Professor

Parke, Barbara
Asst. Professor
Silverstein, Burton
Asst. Professor
Stambolis, Vesilios
Asst. Professor
Venzon, Michael A.
Asst. Professor
Wetzel, Allan B.
Asst. Professor
Yee, Martin J.
Asst. Professor
Yokoo, Teiriki
Assistant

Physiology

Eisenberg, Robert S. *
Professor
Chair
Anderson Jr, Robert A.
Assoc. Professor
Agarwal, Gyan C.
Visiting Professor
Barcilon, Victor
Visiting Professor
Braverman, Berton
Asst. Professor
Brueschke, Erich
Professor
Cohen, Fredric
Assoc. Professor
DeCoursey, Thomas E. *
Asst. Professor
Giuffre, Verlin W.
Instructor
Gottlieb, Gerald L. *
Professor
Hoeppner, Thomas J. *
Asst. Professor
Kroin, Jeffrey S.
Asst. Professor
Levis, Richard A. *
Asst. Professor
Ma, Jian Jie
Instructor
Michael, Joel A. *
Professor
Niles, Walter D.
Asst. Professor
Quandt, Fred N.
Asst. Professor
Ratner, Mark
Visiting Professor
Rovick, Allen *
Professor
Tang, Johnny M.
Assistant
Zaneveld, Lourens *
Professor
Zhilut, Joseph P.
Asst. Professor
Zimmerman, Roger P. *
Assoc. Professor

Plastic and Reconstructive Surgery

Mc Nally, Randall E.
Assoc. Professor
Acting Chair
Aduss, Howard
Professor
Bradley, Craig
Asst. Professor
Cook, John Q.
Instructor
Dean, Robert K.
Instructor
Derman, Gordon H.
Asst. Professor
Figueroa, Alvaro
Instructor
Gold, Henry O.
Emeritus
Kurth, Milton E.
Emeritus
Monroe, Clarence W.
Emeritus
Reisberg, David J.
Associate
Schafer, Michael E.
Assoc. Professor
Schenck, Robert R.
Assoc. Professor
Sperling, Richard L.
Associate
Swartz, Robert M.
Asst. Professor

Preventive Medicine

Schoenberger, James A.
Professor
Chair
Baier, Claudia A.
Instructor
Berndtson, Keith R.
Asst. Professor
Betz, Eleanor
Asst. Professor
Brewer III, Robert D.
Asst. Professor
Brody, Jacob A.
Visit. Professor
Burton, Wayne N.
Asst. Professor
Davidson, Michael H.
Instructor
Davis, Andrew M.
Asst. Professor
Dillon, Charles D.
Asst. Professor
Eckenfels, Edward J.
Assoc. Professor
Elam, Harry P.
Assoc. Professor
Engelberg, Alan L.
Asst. Professor
Glandon, Gerald L.
Asst. Professor
Grouse, Lawrence D.
Associate
Guttman, Rosalie A.
Asst. Professor
Hahn, Jerome J.
Assoc. Professor
Hall, Yolanda F.
Asst. Professor
Harris, Alan A.
Assoc. Professor
Hawes, Jane P.
Instructor
Hudson, Edsel K.
Assoc. Professor
Kallick, Charles
Assoc. Professor
Kassriel, Robert S.
Asst. Professor
Knight, Susan
Instructor
Leksas, Linda
Asst. Professor
Lepper, Mark H.
Professor
Levin, Stuart
Assoc. Professor
Levine, Charlotte C.
Emeritus
Levine, Milton D.
Emeritus
Liebson, Philip R.
Professor
Llewellyn, John W.
Asst. Professor
Mc Creary, Patricia A.
Assoc. Professor
Meyer, John H.
Associate
Nelson, Karen B.
Asst. Professor
Norusis, Marija
Assoc. Professor
Oleske, Denise M.
Asst. Professor
Pate, David J.
Instructor
Payne, Joseph
Asst. Professor
Pomerantz, Rhoda S.
Asst. Professor
Post, John
Emeritus
Proteau, Roseanne V.
Asst. Professor
Remijas, Tracy L.
Instructor
Schoenberger, Joseph
Asst. Professor
Sheldon, Stephen H.
Visiting Professor
Spies, Harold W.
Associate
Shott, Susan
Asst. Professor

Storlie, Jean
Instructor
Turner, Irene R.
Asst. Professor
Van Peenen, Peter F.
Professor
Williams, E Jane
Asst. Professor

Psychiatric Nursing

Ulsafer-Van Lanen, Jane
Asst. Professor
Acting Chair
Szczeny, Susan
Asst. Professor
Act. Assoc. Chair
Rosenberg, Lisa
Asst. Professor
Asst. Chair
Alexander, Anita A.
Instructor
Barkin, Robert
Asst. Professor
Carlson-Sabelli, L.
Asst. Professor
Christman, Luther
Emeritus
Delaney, Kathleen
Instructor
Farran, Carol J.
Assoc. Professor
Fiedler, Ruth
Instructor
Fiske, Marian
Asst. Professor
Geis, Alice
Instructor
Gross, Deborah A.
Assoc. Professor
Hough, Edythe E.
Assoc. Professor
Ipema, Donna K.
Assoc. Professor
Johnson, Mary E.
Instructor
Kapoor, Febe Deepak
Associate
Kopytko, Edwin E.
Instructor
Lafferty, Cheryl M.
Instructor
Lettieri-Marks, Donna
Instructor
Lusk, Peggy
Asst. Professor
Lynch, Priscilla
Asst. Professor
Maxson, Ellen L.
Instructor
Newman, Ann H.
Associate
Nighorn, Sharon
Instructor
Patrick, Dianne
Instructor

Verraud, Suzanne
Instructor
Vitula, Carol Rogers
Instructor
Vowe, John M.
Instructor
Worza, Elaine
Instructor
Wynider, Marsha
Asst. Professor

Psychiatry

Lawcett, Jan A.
Professor
Chair
Lagesen, Carl
Asst. Professor
Lamdur, Mark
Asst. Professor
Lunderson, David R.
Asst. Professor
Lundstrong, Claesa
Asst. Professor
Luer, Richard K.
Instructor
Larkin, Robert
Asst. Professor
Lusach, Gail M.
Assistant
Lusach, Michael
Professor
Luscher, Jack C.
Asst. Professor
Loom, Robert W.
Asst. Professor
Lund, Bennett G.
Asst. Professor
Lundhanan, Robert W.
Asst. Professor
Luck, David W.
Asst. Professor
Lusich, Katie
Asst. Professor
Lundann, Stephen R.
Instructor
Larlock, William D.
Instructor
Lavanaugh Jr., James L.
Professor
Lavanaugh, Stephanie
Assoc. Professor
Lhor, Philip N.
Asst. Professor
Lhuy, Ismael Lee
Instructor
Lark, David C.
Assoc. Professor
Lark, Susan H.
Instructor
Lombs, Gene Norman
Associate
Lopperman, Suzanne K.
Asst. Professor
Lrawford, James W.
Assoc. Professor
Lampzt, Robert E.
Asst. Professor

Daugherty, Milton H.
Instructor
Davis-Maxam, Glynda
Assistant
Dempsey, Michael C.
Assistant
Ebenhoe, Patrick E.
Asst. Professor
Edwards, John H.
Visit. Asst. Prof.
Epstein, Phillip S.
Asst. Professor
Ericksen, Stephen E.
Asst. Professor
Fanelli, Joseph G.
Instructor
Feldmann, Theodore B.
Instructor
Fine, Martin
Asst. Professor
Fink, Peter
Asst. Professor
Freeman, Anne C.
Assistant
Gable, Leslie
Instructor
Garvin, John S.
Professor
Gerty, Francis J.
Emeritus
Gierl, Benedict L.
Asst. Professor
Golchini Shafa, Mehdi
Associate
Goldberg, Arnold I.
Professor
Goodfriend, Marlene S.
Asst. Professor
Gottlieb, John F.
Instructor
Grossman, Linda S.
Asst. Professor
Guise, Gracia
Asst. Professor
Gutmann, Cheryl M.
Asst. Professor
Gwyer, Fred V.
Asst. Professor
Halper, Ira S.
Asst. Professor
Hammon, Ann Lucinda
Assistant
Hanni, John W.
Professor
Harris, Charles R.
Instructor
Haynes, Joan
Instructor
Hendler, Samuel
Asst. Professor
Herrmann, Kerilynn
Assistant
Hirsch, Alan R.
Asst. Professor
Holemon, Lance D.
Instructor
Holinger, Paul C.
Assoc. Professor

Hovde, Christian A.
Asst. Professor
Hulcher, Julia M.
Instructor
Ivanoff, Jeffrey A.
Asst. Professor
Jaffe, Charles M.
Asst. Professor
Jiron, Arnoldo J.
Asst. Professor
Johnson, Bruce C.
Instructor
Johnson, Kathleen H.
Assistant
Johnson, Margery R.
Asst. Professor
Joseph, David A.
Instructor
Kachoris, Paul J.
Asst. Professor
Kaegi, Charles E.
Instructor
Katz, Jerome I.
Asst. Professor
Kelly, Jonathan
Asst. Professor
Kluft, Richard P.
Visit. Assoc. Prof.
Kniffin, Judith E.
Assistant
Kraines, Samuel H.
Emeritus
Kravitz, Howard
Asst. Professor
Lam, Ing-Ing
Associate
Lane, Harold J.
Instructor
Langsley, Pauline R.
Asst. Professor
Lazarus, Lawrence W.
Asst. Professor
Leff, Joel R.
Instructor
Levin, Daniel Eric
Assistant
Levitt, Leroy
Emeritus
Libert, Samuel A.
Associate
Litowitz, Bonnie E.
Visit. Assoc. Prof.
Lofgren, Katharine A.
Asst. Professor
Mandelbaum, Stuart P.
Associate
Meehan, Marjorie C.
Emeritus
Mehlinger-Mitchell, R.
Asst. Professor
Meiszner, John W.
Instructor
Mershon, Steven
Asst. Professor
Miller, Raymond N.
Associate
Misch, Donald
Instructor

Morrison, Caroline M.
Assistant
Morrison, David
Asst. Professor
Nuzzarello, Angela
Assistant
Olsen, Joann Marie
Assistant
Ostrov, Eric
Asst. Professor
Patterson, Joan E.
Asst. Professor
Perkins, George L.
Emeritus
Pieper, William J.
Asst. Professor
Pollock, George H.
Lecturer
Putnam, Frank W.
Visit. Assoc. Prof.
Rebeck, Barry M.
Instructor
Reifman, Robert A.
Asst. Professor
Reinstein, Michael J.
Asst. Professor
Ripeckyj, Andrew
Asst. Professor
Rose, Robert Marc
Visiting Professor
Rosenthal, Maurice J.
Asst. Professor
Rosenthal, Ruth Beth
Instructor
Sachs, Roberta
Asst. Professor
Samelson, Charles F.
Asst. Professor
Sanders, Roxane Y.
Assistant
Schaff, Mary Ruth
Asst. Professor
Scheftner, William A.
Asst. Professor
Schrift, Michael J.
Asst. Professor
Schroeder, Steven M.
Instructor
Schwarz, Marvin
Asst. Professor
Shulman, Robert B.
Assistant
Simons, Virginia A.
Assistant
Sivan, Abigail B.
Asst. Professor
Sommerfeldt, Lorraine
Instructor
St. Clair, Doris E.
Asst. Professor
St. Pierre, Aimee C.
Asst. Professor
Stampley, Jan O.
Instructor
Steed, W. David
Assoc. Professor
Strozier, Charles P.
Visit. Asst. Prof.

Thompson, Dennis S.
Instructor
Tilkin, Jeffrey M.
Asst. Professor
Trager, Eugene P.
Asst. Professor
Votolina, Eugene J.
Instructor
Wahlstrom Jr, Carl M.
Instructor
Wasylw, Orest
Asst. Professor
West, James Ward
Asst. Professor
Westheimer, Ruth
Asst. Professor
Winsberg, Gwynne Roesse
Visit. Assoc. Prof.
Wolff, John R.
Professor
Wright, Donovan G.
Emeritus
Young, Michael
Asst. Professor
Zadylak, Robert G.
Asst. Professor
Zajacka, John M
Instructor

Psychology and Social Sciences

Cartwright, Rosalind D.
Professor
Chair
Aber, William R.
Asst. Professor
Amstutz, Diane K
Asst. Professor
Anderson, David R.
Asst. Professor
Aschkenasy, Jean R.
Asst. Professor
Bernard, Bryan A.
Asst. Professor
Bloom, Robert W
Asst. Professor
Brocken, Cecilia
Assoc. Professor
Brown, Roger
Asst. Professor
Burton, Stephen A.
Associate
Cella, David F
Asst. Professor
Christman, Luther
Professor
Clark, David C.
Assoc. Professor
Counte, Michael
Assoc. Professor
Crawford, James W.
Assoc. Professor
Daugherty, Steven R.
Instructor
DeToledo-Morrell, Leyla
Assoc. Professor
Eastman, Charmane
Assoc. Professor
Farrell, Patricia
Asst. Professor
Garron, David C.
Professor
Gilley, David W.
Asst. Professor
Glandon, Gerald L.
Asst. Professor
Grosse, Debra A.
Asst. Professor
Grossman, Linda S.
Assoc. Professor
Grote, Christopher L.
Asst. Professor
Guise, Gracia
Emeritus
Haut, Allyson, E.
Instructor
Johnson, Marilyn A.
Asst. Professor
Johnson, Paul
Asst. Professor
Kravitz, Howard
Asst. Professor
Leavitt, Frank
Assoc. Professor
Lloyd, Stephen R.
Instructor
Lofgren, Katharine A.
Asst. Professor
Lopez, Martita
Asst. Professor
Mead, John D.
Asst. Professor
Nelson, Michael N.
Assoc. Professor
Nyenhuys, David L.
Asst. Professor
Ostrov, Eric
Asst. Professor
Rothenberg, Saul
Asst. Professor
Rybarczyk, Bruce D.
Asst. Professor
Sachs, Roberta
Asst. Professor
Schoenenberger, Joseph
Asst. Professor
Sher, Tamara
Asst. Professor
Sivan, Abigail B.
Asst. Professor
Stebbins, Glenn T.
Asst. Professor
Stewart, James D.
Asst. Professor
Wasylw, Orest
Asst. Professor
Wetzel, Allan B.
Asst. Professor
Wilson, Robert S.
Assoc. Professor
Yellen, Suzanne B.
Asst. Professor
Young, Michael
Assoc. Professor

Zitter, Robert E.
Asst. Professor

Religion, Health & Human Values

Burton, Laurel A.
Asst. Professor
Chair
Berndtson, Keith R.
Instructor
Burbank, Barbara Beth
Asst. Professor
Burck, Russell
Assoc. Professor
Carton, Robert
Instructor
Corrigan, James V., OSA
Assoc. Professor
DeWolf, Marcia S.
Asst. Professor
Fitchett, George
Assoc. Professor
Hovde, Christian A.
Emeritus
O'Reilly, Jo Ann
Asst. Professor
Rascon, Daniel
Instructor
Savage, Teresa A.
Instructor
Sheldon, Mark Peter
Assoc. Professor
Wagner, William A.
Emeritus
Zhilut, Joseph P.
Instructor

Therapeutic Radiology

Hendrickson, Frank R.
Professor
Chair
Blazek, Ed Robert
Asst. Professor
Conterato, Dean
Asst. Professor
DeJonge, Christopher
Asst. Professor
Galinsky, Dennis L.
Asst. Professor
Griem, Katherine L.
Asst. Professor
Groch, Mark W.
Professor
Hartsell, William
Asst. Professor
Heaton, Diane M.
Assistant
Huang, Jeng-Shyuaan
Instructor
Jette, David
Asst. Professor
Kao, Mark
Asst. Professor
Kazlauskas, Linas John
Assistant

Kim, Younggran S.
Assistant
Kramer, Toby
Asst. Professor
Lanzl, Lawrence H.
Professor
Phillips, Alexander K.
Asst. Professor
Phillips, Richard L.
Visit. Assoc. Prof.
Rozenfeld, Martin
Professor
Rubin, David B.
Asst. Professor
Urbon, John
Asst. Professor

Urology

McKiel Jr. Charles F.
Professor
Chair
Baumgartner, George C
Asst. Professor
Bormes, Thomas P.
Instructor
Callahan, Daniel H.
Emeritus
Chaviano, Antonio H.
Assistant
Cinel, Scott J.
Instructor
Cottrell, Thomas L. C.
Visit. Asst. Prof.
Flanagan, Malachi J.
Professor
Graf, Edwin C.
Emeritus
Guinan, Patrick
Visit. Asst. Prof.
Hoeksema, Jerome
Asst. Professor
Hoyme, Kermit
Instructor
Levine, Stanley R.
Asst. Professor
Merricks, James W.
Emeritus
Nold, Stephen R.
Instructor
Papierniak, Frank B.
Emeritus
Pessis, Dennis A.
Assoc. Professor
Plante, John P.
Assistant
Rooney, Peter
Instructor
Rubenstein, Marvin
Instructor
Slutsky, Joel N.
Instructor
Sokovich, Ronald S.
Assistant
Sosenko, George R.
Instructor
Spellberg, David Mark
Instructor

Alphabetical List

The alphabetical listing of the faculty beginning on the next page includes self-reported data on the highest degree, and university conferring that degree, plus the department(s) in which the faculty member has an appointment.

Abbreviations used in the Alphabetical Faculty Listing to identify departmental appointments.

ANAT	Anatomy
ANES	Anesthesiology
BCH	Biochemistry
CHN	Community Health Nursing
CDS	Communication Disorders and Sciences
CNTR	Clinical Nutrition
CVT	Cardiovascular-Thoracic Surgery
DERM	Dermatology
DIAG	Diagnostic Radiology
FAM	Family Practice
GERN	Gerontological Nursing
GSUR	General Surgery
HSM	Health Systems Management
IMMC	Immunology/Microbiology
MATN	Maternal Child Nursing
MED	Internal Medicine
MEDN	Medical Nursing
MPH	Medical Physics
MTPT	Medical Technology and Perfusion Technology
NEU	Neurological Sciences
NEUS	Neurological Surgery
OBG	Obstetrical and Gynecologic Nursing
OCC	Occupational Therapy
OPHTH	Ophthalmology
ORSN	Operating Room & Surgical Nursing
ORTH	Orthopedic Surgery
OTO	Otolaryngology & Bronchoesphagology
PATH	Pathology
PED	Pediatrics
PHR	Pharmacology
PMR	Physical Medicine & Rehabilitation
PHY	Physiology
PLAS	Plastic and Reconstructive Surgery
PSY	Psychiatry
PSYC	Psychology and Social Sciences
PSYN	Psychiatric Nursing
PVM	Preventive Medicine
REL	Religion, Health and Human Values
THER	Therapeutic Radiology
UROL	Urology

Alphabetical Faculty Listing

- Aagesen, Carl
D.O., Univ. of Iowa
PSY
- Aardsma, Allen H.
B.A., Hope College
HSM
- Aaronson, Donald W.
M.D., U. of Illinois-Chgo.
MED
- Abbasi, Ismail M.
M.B.B.S., Egypt
PED
- Abcarian, Herand
M.D., Iran
SUR
- Abensohn, Meryl K.
M.D., Washington Univ.
DERM
- Aber, William R.
Ph.D., Florida Int'l. Univ.
PSYC
- Abraham, Clara
M.D., Univ. of Chicago
MED
- Abrahamian, Frida P.
M.D., Ohio State Univ.
MED
- Abramowitz, Bruce
M.D., S.U.N.Y. at Buffalo
MED
- Abrams, Lisa I.
M.D., Loyola U. of Chgo.
MED
- Abrams, Richard I.
M.D., U. of Illinois-Chgo.
MED
- Abtahi, Mohammed
M.D., IRAN
PED
- Abusharif, Hamdala H.
B.S., U. of Illinois-Chgo.
PED
- Acharya, Vasant
M.B.B.S., India
OBG
- Ackerman, Laurens V.
M.D., Ph.D., U. of Ill.-Chgo.
DIAG
- Ackley, William O.
M.D., Chgo. Medical Sch.
SUR
- Ackman, Jeffrey D.
M.D., U. of Illinois-Chgo.
ORTH
- Adair III, William A.
M.D., Northwestern Univ.
PMR
- Adams, Ralph Antony
M.S., Rush University
OCC
- Adams, Verdine
D.P.M., Northwestern Univ.
ORTH
- Adapathya, Shankarnara
M.B.B.S., India
OBG
- Adkins, Geoffrey
M.D., Univ. of Chicago
OBG
- Adler, Yolanda T.
M.D., Argentina
DIAG, MED
- Aduss, Howard
D.D.S., Northwestern Univ.
PLAS, SUR
- Agarwal, Gyan C.
Ph.D., Purdue Univ.
PHY
- Agarwala, Brojendra N.
M.B.B.S., India
PED
- Agee, Kimberly R.
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MED
- Ahart, Sharon L.
M.D., Mexico
PED
- Ahluwalia, Y. Kumar
M.B.B.S., India
PSY
- Ahmadian, Yahya S.
M.D., Iran
PED
- Ahmed, Khalid F.
M.B.B.S., Pakistan
FAM
- Ahmed, Mohammad
M.B.B.S., India
MED
- Ahmed, Vasia A.
M.B.B.S., Pakistan
MED
- Ahmed, Ziauddin
M.B.B.S., India
MED
- Abstrom Jr, James P.
M.D., Northwestern Univ.
ORTH
- Aimi, Kenji
M.D., Japan
OTO
- Akers, Paul T.
D.D.S., Loyola U. of Chgo.
SUR
- Akhtar, Naveed
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IMMC
- Akrami, Cyrus
M.D., Iran
PED
- Akre, Osmund H.
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MED
- Alavi, Iltifat A.
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M.R.C.P., United Kingdom
MED
- Alavi, Nahid
M.D., Iran
MED
- Albert, Brian H.
M.D., U. of Illinois-Chgo.
MED
- Albertson, Barbara J.
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PED
- Albovias, Susan P.
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FAM
- Albrecht, Leslie J.
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MEDN
- Alcorn, Franklin S.
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DIAG
- Alder, Gary F.
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SUR
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MED
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MED
- Alexander, Anita A.
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- Alexander, Maryann
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MATN
- Ali, Amjad
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DIAG
- Aliaga, Jorge
M.D., Peru
MED
- Aliga, Norman A.
M.D., Philippines
PMR
- Allen, Richard M.
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OBG
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OBG
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OBG

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- Ameli, Hooshang
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OBG
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FAM
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SUR
- Anderson, Kenning M.
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BCH, MED
- Anderson, Philip
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FAM
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OBG, PHY
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GERN, MEDN
- Andrews, Steven L.
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FAM
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ANAT, ORTH
- Andriacou, Calliope
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PED
- Angarita, Luis
M.D., Spain
MED
- Angspatt, Sompongse
M.D., Thailand
PED
- Anjaria, Barbara
M.S.N., Wayne State Univ.
CHN
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FAM
- Antony, Alphonsa C.
M.B.B.S., India
FAM
- Appleyard, Joann
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CHN
- Arain, Mohammed
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OBG
- Arcilla, Rene A.
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MED
- Armstrong, Claesa
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PSY
- Armstrong, Robert
D.D.S., Northwestern Univ.
SUR
- Arndt, Thomas R.
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MED
- Arneccilla, Pablo B.
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PED
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M.S.N., U. of Pennsylvania
ORSN
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PED
- Bach Jr, Bernard R.
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- Backer, Barbara
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MED
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CDS, OTO
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FAM
- Badrinath, Shyamala K.
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ANES
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PSY
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MED
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BCH
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PVM
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OTO
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NEU, PATH
- Baker, Elizabeth
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- Balagtas, Rolando C.
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ANES

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HSM
- Berndt, Sheila M.
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FAM
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FAM, PVM, REL
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MED
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MED
- Bertsch, Mary Jo
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MED
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BCH, CNTR
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M.B.B.S., India
PED
- Bhoopal, Vasireddy
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- Bhutto, Zahida R.
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- Biala, Gerald E.
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DERM
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DERM
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MED
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PED
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SUR
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- Bishop, Jacqueline J.
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HSM
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MED
- Black, Jonathan
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ORTH
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OPHT
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PED
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FAM
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DERM
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OBG
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THER
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MEDN
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HSM
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MED
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- Block, Leslie J.
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OTO
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PATH
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PSY, PSYC
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MED
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MATN
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MED
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PATH
- Bolton, Edmund
M.D., Meharry Med. Col.
MED
- Bone, Roger C.
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MED
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SUR
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ANES
- Bonnin, Arturo J.
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- Bonomi, Philip D.
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MED
- Bormes, Thomas P.
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UROL
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ORTH

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Boyd, Kevin L.
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ANES, PHY

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OPHT

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ORSN

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MATN
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ANES
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- Buentello, Gloria N.
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MED
- Burbank, Barbara Beth
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REL
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ANAT, PED
- Burck, Russell
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REL
- Burdick, Allison L.
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FAM
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CHN
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- Burton, Laurel A.
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- Butler, Peter W.
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HSM
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M.S., Northeastern Ill. U.
HSM
- Carpenter, Lowell D.
M.D., Case Western Res. U.
MED
- Carr, Ian R.
M.B.B.S., United Kingdom
PED
- Carr, Janet
M.D., Meharry Medical Col.
PED
- Carroll, Karen
M.S.N., Loyola U. of Chgo.
MATN
- Carroll, Victoria S.
M.S., Rush University
NEU
- Carton, Kevin-Anthony
M.D., U. of Illinois-Chgo.
MED
- Carton, Robert
M.D., Northwestern Univ.
MED, REL
- Cartwright, Rosalind D.
Ph.D., Cornell Univ.
PSYC
- Carvey, Paul
Ph.D., Rush University
ORSN, PHR
- Cascino, Christopher J.
M.D., Loyola U. of Chgo.
NEUS
- Casey, Ginny M.
M.S., Rush University
ORSN
- Casey, Larry C.
M.D., U. of Illinois-Chgo.
Ph.D., Georgetown Univ.
BCH, MED
- Casey, Larry C.
Ph.D., Georgetown Univ.
BCH
- Casini, Jack G.
M.D., Ohio State Univ.
ORTH
- Cassini, Carol L.
M.S., Ohio State Univ.
MEDN
- Catchpole, Hubert R.
Ph.D., U. of Calif.-Berkeley
NEU
- Catellani, Constance
M.D., U. of Illinois-Chgo.
MED
- Cava, Jose M.
M.D., Spain
OBG
- Cavanaugh Jr, James L.
M.D., U. of Pennsylvania
PSY
- Cavanaugh, Stephanie
M.D., Northwestern Univ.
MED, OBG, PSY

Alphabetical Faculty Listing

- Cavens, Robert Lee
M.D., Rush University
FAM
- Cella, David F.
Ph.D., Loyola U. of Chgo.
MED, PSYC
- Cerinich, Melanie Anne
M.D., Rush University
SUR
- Challberg, Carol
M.S., Univ. of Colorado
MATN
- Chams, Joyce Gail
B.S., U. of Illinois-Chgo.
OBG
- Chan, Paulino
M.D., Philippines
ORTH
- Chande, Sumitra
M.B.B.S., India
PED
- Chandra, Govind
M.D., India
MED
- Chang, Randolph Yoon
M.D., Rush University
ANES
- Chang, Timothy C.
M.D., Taiwan
PED
- Charletta, Dale A.
B.A., Rice University
DIAG
- Charnogursky, Gerald A.
M.D., U. of Pennsylvania
MED
- Charters, John R.
M.D., U. of Michigan
DIAG
- Chase, Robert A.
M.D., Rush University
MED
- Chaudhary, Farzana S.
M.B.B.S., Pakistan
PED
- Chaudhary, Mohammad Y.
M.D., Pakistan
PED
- Chaudhuri, Gouri
M.D., Indiana Univ.
PMR
- Chavarria, Arturo
M.D., Rush University
MED
- Chavez, Milton C.
M.D., Meharry Medical Col.
FAM
- Chen, Kuo Ching
M.D., Taiwan
SUR
- Cherukara, John
M.B.B.S., St. John's College
PED
- Chervony, Abraham M.
M.D., U. of Illinois-Chgo.
MED
- Chez, Michael G.
M.D., Indiana Univ.
PED
- Chhablani, Ramesh
M.B.B.S., India
MED
- Chilis, Thomas J.
B.S., Illinois Inst. of Tech.
PATH
- Chirban, Angelo
M.D., U. of Illinois-Chgo.
MED
- Chong, Kwanho
M.D., Rush University
SUR
- Chor, Philip N.
M.D., U. of Cincinnati
PSY
- Christensen, Eldis M.
M.D., U. of Illinois-Chgo.
SUR
- Christian, Joseph R.
M.D., Loyola U. of Chgo.
PED
- Christiansen, Kathryn
D.N.Sc., Rush University
CHN
- Christides, Tatiana
M.D., Rush University
MED
- Christman, Luther
Ph.D., Michigan State U.
PSYN, PSYC
- Christopher, Beth Anne
M.S., U. of Michigan
MEDN
- Christopoulos, Angelos
M.D., Greece
PSY
- Chronis, Basil G.
M.D., Greece
OBG
- Chu, Chae On
M.D., Rush University
MED
- Chudwin, David S.
M.D., U. of Michigan
IMMC, PED
- Chutuape, Mariano D.
M.D., S.U.N.Y. Stony Brook
MED
- Chuy, Ismael Lee
M.D., Philippines
PSY
- Chuy, Ismael Lee
Ph.D., Chgo. Medical Sch.
PSY
- Cirone, Marianne W.
M.S., Rush University
HSM
- Citronberg, Robert J.
B.A., U. of Pennsylvania
MED
- Claman, Maurice A.
M.D., Tulane Univ.
SUR
- Clardy, Christopher W.
M.D., Univ of Virginia
IMMC, PED
- Clark, David C.
Ph.D., Univ. of Chicago
PSY, PSYC
- Clark, David John
M.B.Ch., United Kingdom
ORTH
- Clark, James G.
M.D., U. of Illinois-Chgo.
MED
- Clark, Susan H.
M.D., Rush University
PSY
- Clarke, Jan Andree
M.D., Cornell Univ.
MED
- Clasen, Raymond A.
M.D., U. of Illinois-Chgo.
PATH
- Clemmings, Linda L.
M.A., Roosevelt University
M.S., Rush University
CHN
- Clifford, Sonya
M.D., Medl. Col. of Ohio
PATH
- Cline, Kenneth N.
M.D., U. of Illinois-Chgo.
MED
- Cobleigh, Melody A.
M.D., Rush University
MED
- Cochran, Elizabeth J.
M.D., Rush University
PATH
- Cocjin, Jose Lorenzo T.
M.D., Philippines
PED
- Cocjin, Juan Tirol
M.D., Philippines
PED
- Cohen, Fredric
Ph.D., S.U.N.Y. Stony Brook
PHY
- Cohen, Gerald
M.D., U. of Illinois-Chgo.
MED
- Cohen, Maynard
M.D., Wayne State Univ.
Ph.D., U. of Minnesota
BCH, NEU
- Colandrea, Michael A.
M.D., U. of Illinois-Chgo.
MED
- Cole, Ada A.
Ph.D., Loyola U. of Chgo.
BCH
- Cole, David R.
M.D., Queen's U. at Kingston
MED
- Cole, Edmond
Ph.D., Purdue Univ.
BCH, MED
- Cole, Warren H.
M.D., U. of Washington
SUR
- Coleman, Cedric L.
M.D., U. of Illinois-Chgo.
MED
- Coleman, James E.
M.D., U. of Calif.-Davis
SUR

- Collinet, Thomas G.
M.D., U. of Illinois-Chgo.
MED
- Collins, James J.
M.D., Rush University
MED
- Collins, Patricia H.
M.D., Mt. Sinai Sch. Med.
ANES
- Colmey, Thomas
M.D., Georgetown Univ.
ORTH
- Coltro, Jerry R.
M.D., Mexico
MED
- Combs, Gene Norman
M.D., U. of Kentucky
PSY
- Comella, Cynthia L.
M.D., U. of Cincinnati
NEU
- Confino, Edmond
M.D., Foreign College
OBG
- Conner, Mary
M.S., Rush University
MATN
- Connolly, Maureen
M.D., Loyola U. of Chgo.
FAM
- Conrad, Barbara
Ph.D., U. of Illinois-Chgo.
MATN
- Conterato, Dean
M.D., Rush University
THER
- Conway, Terrence
M.D., Loyola U. of Chgo.
MED
- Cook, Barbara S.
M.S., Purdue Univ. CDS
- Cook, John Q.
M.D., Northwestern Univ.
PLAS
- Cook, Richard O.
M.D., Univ. of Iowa
OBG
- Cook, Suzanne R.
M.D., Loyola U. of Chgo.
PED
- Coon IV, John S.
Ph.D., Univ. of Chicago
IMMC, PATH, SUR
- Cooperman, Suzanne K.
M.D., Chgo. Medical Sch.
PSY
- Corrigan, Osa, James V.
MA Loyola U. of Chgo.
REL
- Corzatt, Richard D.
M.D., U. of Illinois-Chgo.
ORTH
- Costabile, Dominic
D.O., Chgo. Col. of Osteo.
FAM
- Cotner, Carol Lou
M.S., U. of Nebraska
CNTR
- Cottrell, Thomas L. C.
M.D., Loyola U. of Chgo.
UROL
- Couden, Trevert
M.D., Northwestern Univ.
ORTH
- Counte, Michael
Ph.D., U. of Ill.-Cham/Urb
HSM, CHN, PSYC
- Coupet, Edourd
M.D., U. of Illinois-Chgo.
OBG
- Crane, Marianna L.
M.S., U. of Illinois-Chgo.
CHN
- Crawford, James W.
M.D., Univ. of Chicago
Ph.D., Univ. of Chicago
PSY, PSYC
- Crawford, Paul W.
M.D., Loyola U. of Chgo.
MED
- Crocker, Diane W.
M.D., Boston University
PATH
- Cronin-Stubbs, Diane
D.N., Loyola U. of Chgo.
GERN
- Cruz, Sidney R.
M.D., Philippines
MED
- Cuadros, Hugo F.
M.D., Bolivia
MED
- Cukr, Penelope
D.N.Sc., Rush University
CHN
- Cullinan, John
M.D., U. of Illinois-Chgo.
FAM
- Cummings, Marilyn A.
M.S., Northern Illinois U.
ORSN
- Cump, Norma Gonzalez
M.D., U. of Illinois-Chgo.
FAM
- Cupeles, Angela B.
M.D., Tufts University
PED
- Currie, Andrew G.
M.M., Northwestern Univ.
HSM
- Currie, Robert E.
M.D., U. of Illinois-Chgo.
FAM
- Czerniejewski, Richard
M.D., S.U.N.Y. at Buffalo
PED
- D'Angelo, Charles M.
M.D., Univ. of Vermont
NEUS
- D'Arco, Sharon
M.S., Rush University
MEDN
- D'Silva, Joseph L.
M.D., Rush University
ORTH
- Dabek, Theresa M.
M.D., Rush University
FAM
- Dado Jr, Ralph N
M.D., Loyola U. of Chgo.
OPHT
- Dainauskas, John R.
M.D., Loyola U. of Chgo.
PATH
- Dalal, Suniti
M.D., India
OBG
- Dallessandro, Alan
D.D.S., Loyola U. of Chgo.
SUR
- Dall, Carol J
M.S., U. of Illinois-Chgo.
GERN
- Daly-Gawenda, Debra A.
M.S., U. of Illinois-Chgo.
CHN
- Damper, Patricia Diann
M.D., Loyola U. of Chgo.
Ph.D., Yale University
MED
- Dampier, Mary F.
M.D., Loyola U. of Chgo.
Ph.D., U. of Wisconsin
MED
- Damptz, Robert E.
M.D., Loyola U. of Chgo.
PED, PSY
- Dangles, George J.
M.D., U. of Illinois-Chgo.
OPHT
- Daniel, Ronald O.
M.D., New York Med. Col.
OBG
- Danko, Henry
M.D., Rush University
MED
- Darki, Abdul H.
M.D., Iran
PED
- Daugherty, Milton H.
M.D., Meharry Medical Col.
PSY
- Daugherty, Steven R.
Ph.D., Univ. of Chicago
PSYC
- Daum, Thomas D.
M.D., Univ. of Kentucky
FAM
- Davalle, Michael J.
M.D., Loyola U. of Chgo.
CVT
- David, Paul P.
M.D., West Germany
PSY
- Davidson, Michael H.
M.D., Ohio State Univ.
MED, PVM
- Davila, Fidel
M.D., Harvard University
MED
- Davis Jr, Carl B.
M.D., Univ. of Chicago
SUR

Alphabetical Faculty Listing

- Davis, Andrew M.
M.D., Univ. of Chicago
MED
- Davis, Andrew M.
M.D., Univ. of Chicago
PVM
- Davis, Floyd A.
M.D., U. of Pennsylvania
NEU
- Davis, John Scott
M.D., Rush University
SUR
- Davis, Leon N.
M.D., Wayne State Univ.
MED
- Davis, Nancy Lynn
M.S., Rush University
GERN
- Davis, Zev
M.D., Israel
CVT
- Davis-Maxam, Glynda
M.D., Univ. of Missouri
PSY
- Davison, Daniel T.
D.O., Michigan State U.
FAM
- DeCoursey, Thomas E.
Ph.D., U. of Cincinnati
PHY
- DeFoor, Lori
M.S., Western Kentucky U.
CNTR, OTO
- DeGeest, Koen
M.D., Belgium
OBG
- DeJong, George
M.D., Michigan State U.
MED
- DeJonge, Christopher
Ph.D., Rush University
THER
- DeLaCruz, Marco A.
M.D., U. of Illinois-Chgo.
FAM
- DeLaria, Giacomo A.
M.D., Tufts University
CVT
- DeLeo, Caesar A.
M.D., Foreign College
MED
- DeMonterice, Donna
M.N., U. of Pittsburgh
MATN
- DePeyster, Frederic
M.D., Rush University
SUR
- DeRose, William F.
M.D., Northwestern Univ.
MED
- DeSaPereira, E.
M.D., Brazil
PSY
- DeStefano, Michael D.
M.D., Rush University
PED
- DeToledo-Morrell, Leyla
Ph.D., McMaster Univ.
NEU, PSYC
- DeWald, Ronald L.
M.D., U. of Illinois-Chgo.
ORTH
- DeWolf, Marcia S.
D.N.Sc., Rush University
REL
- Deak, Ferenc
Ph.D., Foreign College
BCH
- Deal, Barbara J.
M.D., Northwestern Univ.
PED
- Deam, Malcolm
M.D., Northwestern Univ.
MED
- Dean, Robert K.
M.D., Ohio State Univ.
PLAS
- Debre, Michael W.
M.D., Loyola U. of Chgo.
MED
- Dederick, Margarida M.
M.D., Brazil
PSY
- Defoor-Hill, Lori A.
M.S., Western Kentucky U.
CDS
- Dehaan, Michael R.
M.D., U. of Illinois-Chgo.
SUR
- Dejong, Steven A.
M.D., Loyola U. of Chgo.
SUR
- DelCampo, Jose A.
M.D., Cuba
PSY
- Delach, Anthony C.
M.D., Mexico
PED
- Delaconcha, Jose
M.D., Mexico
PED
- Delaney, Kathleen
D.N.Sc., Rush University
PSYN
- Delaney, Paul
D.D.S., U. of Illinois-Chgo.
SUR
- DeLeon, Serafin
M.D., Philippines
CVT
- Delneky, Joyce A.
M.D., Mexico
FAM
- Demange, Gilbert R.
M.D., Loyola U. of Chgo.
SUR
- Dempsey, Michael C.
M.D., Rush University
PSY
- Dennis, Richard F.
M.D., U. of Illinois-Chgo.
OPHT
- Dennis, Vernon L.
M.D., Univ. of Alberta
OBG
- Dent, Thomas
M.D., U. of Illinois-Chgo.
FAM
- Derman, Gordon H.
M.D., Rush University
PLAS
- Desai, Renuka
M.B.B.S., India
PED
- Deutsch, Thomas A.
M.D., Rush University
OPHT
- Deutsch, William E.
M.D., U. of Illinois-Chgo.
OPHT
- Devetski, Robert
M.D., Indiana Univ.
MED
- Devine-Jacob, Laura T.
M.S.N., Rush University
MEDN
- Devitt, John J.
M.D., Marquette Univ.
FAM
- Deziel, Daniel J.
M.D., U. of Minnesota
SUR
- DiFilippo, Judith A.
M.S., St. Xavier. College
GERN
- DiFilippo, Mary E.
M.D., Loyola U. of Chgo.
MED
- DiFilippo, Nicholas
D.O., Chgo. Col. of Osteo.
MED
- Diamond, Eugene F.
M.D., Loyola U. of Chgo.
PED
- Diamond, Terrence P.
M.D., Loyola U. of Chgo.
MED
- Dianda, Jeanne
B.S., Michigan Tech. U.
MTPT
- Dieschbourg, Janice
M.D., Loyola U. of Chgo.
DIAG
- Diffenbaugh, Willis G.
M.D., Northwestern Univ.
SUR
- Digianfilippo, Anthony
M.D., U. of Illinois-Chgo.
NEUS
- Dillon, Charles D.
M.D., Georgetown Univ.
MED, PVM
- Dillon, Jane T.
M.D., U. of Illinois-Chgo.
OTO
- Dillon, Paula
M.S.N., U. of Illinois-Chgo.
MEDN

- Dimiceli, Salvatore A.
M.D., Loyola U. of Chgo.
SUR
- Dimuzio, Michael
Ph.D., Northwestern Univ.
BCH
- Dinsmore, Charles E.
Ph.D., Brown University
ANAT
- Ditter, Susan M.
M.D., Emory University
NEU
- Djuric, Michael
M.S.
MTPT
- Djordjeovich, Ljubomir
Ph.D., Illinois Inst. of Tech.
ANES
- Dmowski, W. Paul
M.D., Poland
Ph.D., Med. Col. of Georgia
OBG
- Dochios, Mary
M.D., Hahnemann Univ.
PED
- Doherty, Carolyn M.
M.D., U. of South Dakota
OBG
- Dohse, David A.
D.O., Chgo. Col. of Osteo.
FAM
- Dominguez, Jose M.
M.D., Univ. of Missouri
SUR
- Domont, Lawrence A.
M.D., George Washington U.
MED
- Donnelly, Anne Marie
M.D., U. of Illinois-Chgo.
FAM
- Doolas, Alexander
M.D., U. of Illinois-Chgo.
SUR
- Dorman, Robert J.
D.O., Chgo. Col. of Osteo.
MED
- Dorsey, Lawrence
M.D., Northwestern Univ.
PED
- Dos, Santos Lyn M.
M.B.B.S., India
PED
- Doshi, Mayank Y.
M.B.B.S., India
MED
- Dougherty, Terence J.
Ph.D., Univ. of Delaware
IMMC
- Douglas, Gilbert W.
M.D., Chgo. Medical Sch.
SUR
- Douglas, Linda O.
M.D., Washington State U.
FAM
- Douglass, Paula
M.A., Wichita State Univ.
HSM
- Dourdourekas, Demetrio
M.D., Greece
MED
- Dowlatshahi, Kambiz
M.B., United Kingdom
SUR
- Dowling, Harry F.
M.D., George Washington U.
MED
- Dowling, Rebecca A.
Ph.D., Univ. of Missouri
CNTR, HSM
- Dozier, Emanuel V.
M.D., U. of Illinois-Chgo.
MED
- Drezek, Elizabeth
M.S., Rush University
ORSN
- Driscoll, Thomas P.
M.D., Loyola U. of Chgo.
PED
- Drugas, Gina E.
M.D., Chgo. Medical Sch.
FAM
- Drugay, Marge
M.S., Rush University
GERN
- Drumright, Judy D.
M.S., Colorado State U.
CDS
- Dubin, Alvin
M.S., C.U.N.Y. Brooklyn
BCH
- Duda, Eugene E.
M.D., Loyola U. of Chgo.
DIAG
- Duda, Francis John
M.D., U. of Illinois-Chgo.
PED
- Dugas, Jeffrey A.
M.D., Rush University
MED
- Dulski, Laura A.
M.S.N., Loyola U. of Chgo.
MATN
- Dumbovic, Nives
M.D., Yugoslavia
PED
- Duncan, Denise M.
M.N., U.C.L.A.
ORSN
- Dunea, George
M.B.B.S., Australia
MED
- Dunlop, John T.
M.D., Johns Hopkins Univ.
MED
- Dunn, Kathryn J.
M.S., Rush University
CHN
- Durand, Barbara
Ed.D., U. of San Francisco
MATN
- Durica, Thomas E.
Ph.D., Loyola U. of Chgo.
ANAT
- Duros-Silber, June
M.S., George Williams Col.
M.S., Rush University
GERN
- Dwan, Francis
M.D., Loyola U. of Chgo.
SUR
- Dwarakanathan, Arcot A.
M.B.B.S., India
MED, PVM
- Dworkin, Mark Steven
M.D., Rush University
MED
- Dworsky, Bradley David
M.D., Rush University
ORTH
- Dwyer, William
M.D., Rush University
PATH
- Dy, Deana Lim
M.D., Philippines
IMMC, PED
- Dy, Johnson
M.D., Philippines
OBG
- Dye Jr, William S.
M.D., Northwestern Univ.
CVT
- Earle, Richard H.
M.D., Chgo. Medical Sch.
MED
- Earles, Rene M.
M.D., Howard University
DERM
- Easley, Cheryl E.
D.N., New York University
CHN
- Eastman, Charmane
Ph.D., Univ. of Chicago
PSYC
- Ebeling, Jan
M.D., West Germany
FAM
- Ebenhoe, Patrick E.
M.D., Loyola U. of Chgo.
PSY
- Ebersman, Donald S.
Ph.D., Univ. of Iowa
PHR
- Ecanow, Bernard
Ph.D., U. of Minnesota
PHR
- Eckenfels, Edward J.
Univ. of Chicago
PVM
- Economou, Peter G.
M.D., Hahnemann Univ.
MED
- Economou, Steven G.
M.D., Hahnemann Univ.
SUR
- Edwards, John H.
M.S., U. of Wisconsin
PSY
- Eftekhari, Irandokht
M.D., Foreign College
PED
- Egel, Robert T.
M.D., Chgo. Medical Sch.
NEU, PED
- Eisenberg, Robert S.
Ph.D., United Kingdom
PHY
- Eisenstein, Matthew M.
M.D., U. of Illinois-Chgo.
DIAG

Alphabetical Faculty Listing

- Ekbal, Shahid S.
M.B.B.S., Pakistan
UROL
- El Ganzouri, Abdel R.
M.B.B.C., Egypt
F.R.C.S., United Kingdom
ANES
- Elam, Harry P.
M.D., Loyola U. of Chgo.
PED, PVM
- Elbaz, Nabil M. I.
M.D., Egypt
ANES
- Eliopoulos, Helen
M.D., U. of Illinois-Chgo.
MED
- Ellis, Kenneth K.
M.D., Baylor Col. of Med.
MED
- Ellis, Lisa C
M.D., Baylor Col. of Med.
MED
- Ellison, Maceo
M.D., U. of Illinois-Chgo.
MED
- Elpern, Ellen H.
M.S., U. of Wisconsin
MEDN
- Elser, John Charles
M.D., Va. Commonw'lth U.
FAM
- Embar, Rama
M.B.B.S., India
PED
- Engel, Susan L.
M.D., Chgo. Medical Sch.
PATH
- Engelberg, Alan L.
M.P.H.U. of Pittsburgh
PVM
- Enzbrenner, Laura
M.S., Rush University
HSM
- Epstein, Avrum J.
M.D., Chgo. Medical Sch.
DIAG
- Epstein, Debra
M.D., Northwestern Univ.
OBG
- Epstein, Phillip S.
M.D., Univ. of Chicago
PSY
- Epstein, Randy J.
M.S., Rush University
OPHT
- Erhardt, Peter
M.D., Hungary
BCH
- Ericksen, Stephen E.
M.D., Univ. of Utah
PSY
- Eriksen, Ronald G.
M.D., U. of Illinois-Chgo.
PED
- Eriksson, Joann H.
M.S., Rush University
ORSN
- Erlenborn, James
M.D., Loyola U. of Chgo.
MED
- Ertl, John W.
M.D., Hungary
SUR
- Ertle, James O.
M.D., Switzerland
DERM
- Erwin, James H.
M.D., U. of Alabama
PMR
- Escobar, Nelson G.
M.D., Spain
MED
- Esmond, Truman H.
M.S., U. of Illinois-Chgo.
HSM
- Espiritu, Rolando L.
M.D., Philippines
MED
- Evankoe, Sally A.
M.S., Rush University
MATN
- Evans-Beckman, Linda
M.D., Rush University
FAM
- Evenhouse, Henry John
M.D., Northwestern Univ.
OBG
- Eybel, Carl E.
M.D., U. of Illinois-Chgo.
MED
- Ezri, Marilyn
M.D., Indiana Univ.
MED
- Faber, L. Penfield
M.D., Northwestern Univ.
CVT
- Fagan, Kathleen M.
M.D., Case Western Res U.
MED
- Fanelli, Joseph G.
M.D., Chgo. Medical Sch.
PSY
- Farbstein, Samuel A.
M.D., Chgo. Medical Sch.
MED
- Farley, Kathleen
M.S., Rush University
MEDN
- Farra, Charles R.
MB Egypt
MED
- Farran, Carol J.
D.N.Sc., Rush University
PSYN
- Farrell, Patricia
Ph.D., Illinois Inst. of Tech.
PSYC
- Fassbender, Hans G.
M.D., West Germany
BCH
- Faut-Callahan, Margaret
M.S., Rush University
ORSN
- Fawcett, Jan A.
M.D., Yale University
PSY
- Fay, Mary K.
M.D., U. of Illinois-Chgo.
PED
- Fedder, Judith
M.S., Rush University
MATN
- Feimer, Peter P.
D.D.S., Loyola U. of Chgo.
SUR
- Feingold, Michael T.
M.D., U. of Illinois-Chgo.
OBG
- Fejes, Jolan
M.D., Foreign College
MED
- Feldman, Bernard
M.D., S.U.N.Y., at Buffalo
FAM
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M.D., Rush University
FAM
- Feldmann, Theodore B.
M.D., Univ. of Louisville
PSY
- Felix, Robert E.
M.D., Cornell Univ.
MED
- Fell, Egbert
M.D., Univ. of Chicago
SUR
- Fenner, Dee Ellen
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OBG
- Fenton-Miller, Kathy
B.S., Goshen College
CHN
- Feole, John B.
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SUR
- Feria, Araceli I.
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FAM
- Fernandez, Rafael
M.D., Cuba
OBG
- Ferrel, James A.
M.D., U. of Cincinnati
FAM
- Fick, Bruce D.
M.D., U. of Illinois-Chgo.
OPHT
- Fiedler, Ruth
M.S., Rush University
PSYN
- Figueroa, Alvaro
D.D.S., Foreign College
PLAS, SUR
- Fine, Allan
M.B.A., C.U.N.Y. - Baruch
HSM
- Fine, Martin
M.D., Chgo. Medical Sch.
PSY

- Fink, Peter
M.D., Johns Hopkins Univ.
PED, PSY
- Finkelstein, Adrian
M.D., Israel
PSY
- Finnegan, Alison
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IMMC, MED
- Firfer, Harold S.
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SUR
- Fischer, Ann
M.D., McGill Univ.
PED
- Fischer, Conrad S.
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MED
- Fischer, Tessa
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FAM
- Fisher, Kathy A.
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MED
- Fiske, Marian
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PSYN
- Fisli, Barbara Anne
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MEDN
- Fister, James S.
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ORTH
- Fitchett, George
D.Min., Univ. of Chicago
REL
- Fitzsimmons, William E.
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PHR
- Flacco, Richard M.
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FAM
- Flanagan, Malachi J.
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UROL
- Flanagan, Thomas
M.D., U. of Michigan
MED
- Flanigan, Robert M.
M.D., Marquette Univ.
SUR
- Fleming, Matthew G.
M.D., S.U.N.Y. Downstate
DERM, PATH
- Fliegelman, Robert
D.O., Phila. Col. of Osteo.
MED
- Fligner, Denise J.
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FAM
- Flimlin, Mary T.
M.D., Chgo. Medical Sch.
PMR
- Flint, Sharon Thomas
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PED
- Flood, Timothy P.
M.D., U.C.L.A.
OPHT
- Flores, Esperanza
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FAM
- Floro, Lourdes Dimaano
M.D., Philippines
PED
- Floyd, Gail Y.
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FAM
- Flynn Jr, John F.
M.D., Northwestern Univ.
ORTH
- Forbes, Janet Y.
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MED
- Forchetti, Concetta M.
M.D., Italy
NEU
- Ford, Erica W.
M.B.Ch., United Kingdom
ANES
- Fordham, Ernest W.
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DIAG
- Foreman, Marquis D.
M.S.N., Medl. Col. of Ohio
GERN
- Foreman, Syd
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PED
- Forge, Ruth
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HSM
- Forster, Cornelius A.
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MTPT
- Foster, Dale
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MED
- Foster, Preston F.
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SUR
- Foth, Richard P.
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MED
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MED, NEU
- Frank, Angela
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SUR
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PSY
- Freeman, Maynard L.
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MED
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MED
- Freimanis, Maija
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DIAG
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DERM
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ORTH
- Fried, Peter O.
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FAM
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MED, PHR
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FAM
- Frost, John
M.D., U. of Pennsylvania
MED
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MED
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ANAT, ORTH

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MA United Kingdom
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PSY
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FAM, MED
- Goldberg, Sandra
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- Goldenberg, Bruce
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MED
- Goldflies, Mitchell L.
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ORTH
- Goldin, Marshall D.
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CVT
- Goldin, Milton
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PATH
- Goldman, Mitchell
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- Gomez, Diane R.
M.S., Yale University
PED
- Gonis, Demetrios
M.D., Greece
MED
- Gonzalez, Alma
M.D., U. of Illinois-Chgo.
MED
- Good, Robert C.
M.S., De Paul Univ.
HSM
- Goodfriend, Marlene S.
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PSY
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M.D., Univ. of Vermont
FAM
- Goodman, Harold
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PED
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- Goodman, Michelle
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ORSN
- Goranson, Nancy L.
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PSYC
- Gore, Margaret D.
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DIAG
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NEU
- Gormley, Nanette
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MED
- Gotoff, Samuel P.
M.D., U. of Rochester
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- Gottlieb, Emily
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Ph.D., U. of Illinois-Chgo.
PHY
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PSY
- Gould, Victor E.
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PATH
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OBG
- Graefen, Thomas Alan
D.P.M., De Paul Univ.
ORTH
- Graettinger, John S.
M.D., Harvard University
MED
- Graf, Linda
M.S.N., U. of Illinois-Chgo.
MATN
- Granato, David B.
M.D., U. of Illinois-Chgo.
DIAG
- Grant, Mark
M.D., Med. Col. of Wisc.
FAM
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Ed.D., Indiana Univ.
FAM, OCC
- Green, Alexander A.
M.D., Temple University
PED
- Greenberg, Donald H.
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PED
- Greenberger, Mark A.
M.D., U. of Illinois-Chgo.
MED
- Gregory, Stephanie A.
M.D., Med. Col. of Penna.
MED
- Grendys Jr, Edward C.
M.D., Northwestern Univ.
OBG
- Griem, Katherine L.
M.D., Harvard University
THER
- Griffin, Angela J.
M.D., Wayne State Univ.
MED
- Griffiths, Stephanie
M.D., Meharry Med. Col.
OBG
- Grinblatt, Jeffrey A.
M.D., Northwestern Univ.
MED
- Groch, Mark W.
M.S., De Paul Univ.
MPH, THER
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MEDN
- Gross, Deborah A.
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PED
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PSY, PSYC
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MED
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M.D., Ph.D., U. of Washington
FAM, PVM
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PATH
- Gryfinski, Juanita
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MEDN
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PATH
- Gudmundsen, Gail
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CDS
- Guerra, Rafael Perez
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SUR
- Guerrero-Tiro, Lourdes
M.D., Philippines
PED
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CVT
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UROL
- Guise, Gracia
M.S., U. of Michigan
PSY, PSYC
- Gulanick, Mary Ellen
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MEDN
- Gulczynski, Barbara B.
Northeastern Ill. U.
ORSN
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CNTR
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OBG
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- Gutekunst, Robert W.
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- Guttman, Rosalie A.
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- Ha, Yong Soo
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MATN
- Haggerty, Linda
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SUR
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PVM
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ORTH
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THER
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M.D., Rush University
MED, PATH
- Hinojosa, Jorge A.
M.D., Bolivia
OTO
- Hinrichs, Bradley
MM Northwestern Univ.
HSM

Alphabetical Faculty Listing

- Hirsch, Alan R.
M.D., U. of Michigan
PSY
- Hirsch, Arthur F.
M.D., Chgo. Medical Sch.
FAM
- Hirsch, Debra A.
M.S., Rush University
ORSN
- Hirsch, Steven M.
M.D., Ohio State Univ.
OTO
- Ho, Li O
M.S., Illinois State Univ.
MTPT
- Hobbs, John
M.D., U. of Minn. Morris
OBG
- Hodo, Linda
M.B.A., Roosevelt Univ.
HSM
- Hoeksema, Jerome
M.D., Wayne State Univ.
UROL
- Hoeksema, Tammo
M.D., Netherlands
CVT
- Hoeltgen, Thomas M.
M.D., Northwestern Univ.
MED
- Hoepfner, Thomas J.
Ph.D., McMaster Univ.
NEU, PHY
- Hoepfner, Walter F.
M.D., Rush University
MED
- Hoffman, Rebecca S.
M.D., Rush University
IMMC
- Hoiberg, Ronald B.
M.S., Wayne State Univ.
MTPT
- Holemon, Lance D.
M.D., Univ. of Missouri
PSY
- Holinger, Lauren D.
M.D., Chgo. Medical Sch.
OTO
- Holinger, Paul C.
M.D., Chgo. Medical Sch.
PSY
- Hollinger, Linda
Ph.D., U. of Illinois-Chgo.
MEDN
- Hollinger, Walter
M.D., Univ. of Chicago
MED
- Hollins, Edwin E.
M.D., Harvard University
MED
- Holloman, Karen
M.B.A., Univ. of Chicago
HSM
- Holmes, William H.
D.D.S., Northwestern Univ.
SUR
- Holstein, Beth L.
M.S., Rush University
MEDN
- Homan, Diane D.
M.D., Indiana Univ.
FAM
- Homandberg, Gene
Ph.D., U. of South Dakota
BCH
- Hong, Suzette Catherine
B.A., Trinity Univ.
ANES
- Hopkins, William M.
M.D., Loyola U. of Chgo.
SUR
- Horberg, David
D.D.S., U. of Illinois-Chgo.
SUR
- Horn, Lisa Jean
D.P.M., Scholl Col. of Podia.
ORTH
- Horwitz, Irwin D.
M.D., U. of Illinois-Chgo.
OTO
- Horwitz, Steven D.
M.D., Chgo. Medical Sch.
OTO
- Hoshizaki, Robert J.
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MED
- Hoskin, Francis C. G.
Ph.D., U. of Saskatchewan
BCH
- Hough, Edythe E.
Ed.D., U.C.L.A.
PSYN
- Hovde, Christian A.
D.D. Seabury-Western Theo.
Ph.D., Columbia Univ.
ANAT, PSY, REL
- Howard, Diane M.
M.P.H., U. of Pittsburgh
HSM
- Howard, Kenneth M.
M.D., Univ. of Miami
MED
- Howey, Diane D.
M.D., Loyola U. of Chgo.
PED
- Howser, John W.
M.D., Northwestern Univ.
SUR
- Hoyer, Danuta K.
M.D., Rush University
MED
- Hoyme, Kermit
M.D., U. of Illinois-Chgo.
UROL
- Hrasky, Gregory M.
M.D., Rush University
ORTH
- Hsia, Linda
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PED
- Hsu, Wade
M.D., U. of Michigan
SUR
- Huang, Diana
Ph.D., U. of Michigan
IMMC, MED
- Huang, Jeng-Shyuaan
M.S., Univ. of Lowell
THER
- Hubbard, Lincoln
Ph.D., Mass. Inst. of Tech.
MPH
- Huber, Janice F.
M.D., Rush University
MED
- Huck, Bruce H.
M.D., Rush University
MED
- Huckman, Michael S.
M.D., St. Louis Univ.
DIAG, NEU
- Hudson, Edsel K.
M.D., U. of Illinois-Chgo.
MED, PVM
- Huff, John P.
M.D., Loyola U. of Chgo.
BCH, MED
- Hugar, Michael Donald
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MED
- Hughes, Cynthia J.
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OCC
- Hughes, W Franklin
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ANAT, OPHT
- Hulcher, Julia M.
M.D., Northwestern Univ.
PSY
- Humowiecki, Stephen R.
M.D., Rush University
FAM
- Huna-Calandra, Marcia
M.S., Rush University
CHN
- Hunter Jr, James R.
M.D., U. of Illinois-Chgo.
IMMC
- Hunter, James A.
M.D., U. of Illinois-Chgo.
CVT
- Hunter-Smith, Daniel G.
M.D., Ohio State Univ.
FAM
- Hurley, Thomas Richard
M.D., Rush University
NEUS
- Husain, Mumataz
M.B.B.S., Pakistan
PED
- Husayni, Tarek S.
M.D., Spain
PED
- Hussein, Lily P.
MB IRaq
MED
- Husseini, Salah G.
B.S., U. of Tennessee
MED

- Hutchinson, James C.
M.D., Univ. of Alberta
OTO
- Hutchinson, Janice
M.D., U. of Cincinnati
PED
- Hyde, John S.
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IMMC, PED
- Ichniowski, Richard F.
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OBG
- Ilbawi, Michel N.
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CVT
- Imperial Hizon, A.
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OBG
- Inchul, Lee
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PATH, SUR
- Ing, Todd S.
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- Isern, Maria T.
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MED
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PED
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MED
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ANES
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FAM
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PSY
- Ivanovich, Matthew A.
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PED
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ORTH
- Jacker, Michael H.
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ORTH
- Jackson, Cheryl L.
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MED
- Jacob, Susan K.
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ANAT
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MED
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Kaizer, Herbert
M.D., Stanford Univ.
Ph.D., Boston University
IMMC, MED, PED
Kakodkar, Vasundhara
M.B.B.S., India
PED
Kal, Mark P.
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FAM
Kale, Alka
M.D., India
OBG
Kale, Scott A.
M.D., Chgo. Medical Sch.
MED
Kaliana, Muthukumaran
M.D., India
PED
Kalimuthu, Ramasamy
M.D., India
PLAS
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M.D., Rush University
DERM
Kallick, Charles
M.D., U. of Illinois-Chgo.
MED, PED, PVM
Kalsted, Charles L.
M.D., Northwestern Univ.
FAM
Kaltman, Jerome
M.D., U. of Cincinnati
PED
Kaminski, Joanne M.
Ph.D., U. of Illinois-Chgo.
OBG
Kaminski, Ludwig
M.D., Poland
MED
Kammel, Rogina
M.D., Egypt
PED
- Kanaris, Mark**
M.D., Greece
FAM
Kang, Bann
M.D., South Korea
MED
Kang, David S.
Ph.D., South Korea
MED, PED
Kang, Kooil
Ph.D., Rush University
BCH
Kanis, Lorraine J.
M.D., Wayne State Univ.
PMR
Kannan, Chakravarthy
M.D., Indonesia
MED
Kantutis, Connie A.
B.S., U. of Illinois-Chgo.
HSM
Kao, Mark
Ph.D., U. of Illinois-Chgo.
MPH, THER
Kaplan, Edward H.
M.D., Loyola U. of Chgo.
MED
Kaplan, Sidney
M.D., U. of Illinois-Chgo.
DERM
Kapoor, Febe Deepak
MN Rush University
PSYN
Kapral, Jane
M.D., Wayne State Univ.
PED
Kapusta, George R.
M.D., Univ. of Washington
SUR
Karas, Ilias N.
M.D., Greece
OTO
Kark, Robert M.
F.R.C.P., United Kingdom
MED
Karrel, Richard
M.D., U. of Illinois-Chgo.
MED
Karson, Tom Harry
M.D., LaSalle Univ.
MED
Kartha, Ponnunni K. I.
M.S., India
MPH, THER
Kasinath, Balakuntalam
M.B.B.S., India
MED
Kaskel, Larry Samuel
M.D., Rush University
MED
Kassriel, Robert S.
M.D., Columbia Univ.
MED, PVM
Katz, Jerome I.
M.D., U. of Illinois-Chgo.
PSY

- Katz, Linda S.
M.D., Univ. of Louisville
OBG
- Katz, Robert S.
M.D., Univ. of Maryland
MED
- Kaushal, Satya P.
M.B.B.S., India
ORTH
- Kavinsky, Clifford Jay
M.D., Rush University
Ph.D., Univ. of Chicago
MED
- Kay, Matthew D.
M.D., Temple University
OPHT
- Kaye, Bennett A.
M.D., U. of Illinois-Chgo.
PED
- Kaye, Celia
M.D., Wayne State Univ.
Ph.D., Northwestern Univ.
PED
- Kazaniwskyj, Lubomyra
D.O., Chgo. Col. of Osteo.
FAM
- Kazlauska, Theresa
M.D., U. of Illinois-Chgo.
PED
- Kazlauskas, Linas John
M.D., Rush University
THER
- Keane, Donal M.
M.D., Ireland
ANES
- Keane, John T.
M.D., Loyola U. of Chgo.
DERM, PATH
- Kearns, Kevin P.
Ph.D., Univ. of Kansas
CDS
- Keers, Suzanne
M.B.A., U. of Illinois-Chgo.
HSM
- Keh-Wong, Elisa S.
M.D., Philippines
ANES
- Kehoe, William R.
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MED
- Keith, L.E.
M.D., Harvard University
PED
- Keithley, Joyce
D.N.Sc. Rush University
ORSN
- Kelleher, Leon R.
D.D.S., U. of Illinois-Chgo.
SUR
- Kelly Jr, Frank B.
M.D., Univ. of Chicago
MED
- Kelly, Frank C.
M.D., Chgo. Medical Sch.
MED
- Kelly, Jonathan
M.D., S.U.N.Y. Upstate
PSY
- Kelly, Maureen P.
M.D., Hahnemann Univ.
OBG
- Kelly, Michael E.
M.D., U. of Illinois-Chgo.
SUR
- Kemp, Mildred G.
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ORSN
- Kendra, Dorothy
M.S., De Paul Univ.
GERN
- Kendrick, Alfred E.
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PED
- Kennelly, Christine
M.S., Georgia State Univ.
MATN
- Kenton, Lorry
M.S.N., Univ. of Colorado
GERN
- Keomuan, Poonsri
M.D., Thailand
MED
- Kerchberger, John P.
M.D., Univ. of Chicago
ANES
- Kerns, James M.
Ph.D., Purdue Univ.
ANAT
- Kessel, Kenneth F.
M.D., U. of Illinois-Chgo.
FAM
- Kessler, Harold A.
M.D., Rush University
IMMC, MED
- Khan, Abdul K.
M.B.B.S., India
MED
- Khan, Raheel R.
M.B.B.S., Pakistan
PED
- Khan, Saeed
M.B.B.S., Pakistan
MED
- Khodadad, Jena
Ph.D., Northwestern Univ.
ANAT, PATH
- Khouzam, Atef
M.D., Egypt
MED
- Khurana, C. Mohini
M.B.B.S., India
PED
- Khurana, Saroj
M.B.B.S., India
PED
- Kiester, Phillip D.
M.D., Indiana Univ
MED
- Kijek, Barbara G.
M.D., Poland
PED
- Kilburg, Susan
M.S., Rush University
HSM, OBG
- Kiley, R James
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PED
- Kilian, Jane T.
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MATN
- Killingsworth, Deborah
B.S., De Paul Univ.
MED, MTPT
- Kim, Grace Yoon
M.D., Rush University
FAM
- Kim, Ju Hyun
M.D., South Korea
PED
- Kim, Youngran S.
M.D., Univ. of Vermont
THER
- Kimura, James H.
Ph.D., Case Western Res. U.
BCH
- Kincaid, Phyllis
M.S., De Paul Univ.
MEDN
- Kind, Gabriel M.
M.D., Northwestern Univ.
SUR
- Kindrachuk, William
M.D., Univ. of Toronto
PED
- King, Donald G.
B.S., Purdue Univ.
SUR.
- King, J. Theodore
M.D., Indiana Univ.
FAM
- King, Jeffrey M.
M.D., S.U.N.Y. Upstate
OTO
- King, Jerry N.
M.D., Indiana Univ.
CVT
- King, Joseph C.
M.D., Tulane Univ.
MED
- Kinney, Janet
M.D., Northwestern Univ.
MED
- Kintanar, Felismeno
M.D., Philippines
PED
- Kirk, Harold Q.
M.D., Northwestern Univ.
OPHT
- Kirkland, Wallace W.
M.D., Northwestern Univ.
MED
- Kirrin, Alex J.
M.D., Belgium
PED
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MED
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CVT
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NEU, PHR
- Klein, Joel S
M.D., Chgo. Medical Sch.
MED
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M.S., U. of Illinois-Chgo.
MEDN
- Klinger, Alfred D.
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MED, PVM
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Ph.D., Bowling Green St. U.
CDS, OTO, PED
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MEDN
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CDS
- Kluft, Richard P.
M.D., Harvard University
PSY
- Kluiber, Rudolph M.
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SUR
- Klusens, Larry F.
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PATH
- Kmicikewycz, Alexander
M.D., Chgo. Medical Sch.
MED
- Knepper, Greg
M.S., Ohio State Univ.
HSM
- Kniffin, Judith E.
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PSY
- Knight, Raymond W.
M.D., Ohio State Univ.
MED
- Knight, Russell M.
M.H.A., U. of Minn.-Duluth
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MA Univ. of Chicago
PVM
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OBG
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MED
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MED
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FAM
- Knudson, Cheryl
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BCH
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BCH, PATH
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PED
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OTO
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GERN
- Kopp, Joseph B.
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- Kopytko, Edwin E.
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- Korbet, Stephen M.
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MED
- Korenblit, Allen D.
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- Kornblatt, Brian J.
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BCH, MED
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OBG
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NEUS
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- Kramer, Toby
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- Krasnow, Sheldon E.
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MED
- Labanaskas, Ignas
M.D., U. of Illinois-Chgo.
ORTH
- Labriola, Rose
M.S., St. Xavier College
ORSN
- Lafferty, Cheryl M.
M.S., Rush University
PSYN
- Lafferty, Linda
Ph.D., Univ. of Missouri
CNTR
- Lafollette, Suzanne
M.D., Rush University
MED
- Lai, Joseph C.
MB Taiwan
ANES
- Lai, Lawrence R.
M.D., Taiwan
PED
- Lai, Tai Min
M.D., Taiwan
ANES
- Lal, Anand
M.B.B.S., India
MED
- Lam, Ing-Ing
M.D., Rush University
PSY
- Lamb, Karen
M.S., Rush University
GERN
- Lambur, James A. K.
M.D., Loyola U. of Chgo.
ORTH
- Lamothe, Joseph L.
M.D., U. of Minnesota
FAM
- Lampasso, James G.
B.S., Manhattan College
MED
- Lamprecht, Catherine
M.D., U. of Illinois-Chgo.
PED
- Landau, William
Ph.D., U. of Pennsylvania
IMMC
- Landay, Alan
Ph.D., U. of Pittsburgh
MED, MTPT, PATH
- Lane, Harold J.
M.D., U. of Illinois-Chgo.
PSY
- Lang, Gordon
M.D., S.U.N.Y. at Buffalo
MED
- Lang-Carney, Mary
M.D., Chgo. Medical Sch.
FAM
- Lange, Yvonne
Ph.D., United Kingdom
BCH, PATH
- Langford, David A.
M.D., Emory University
CVT
- Langsley, Pauline R.
M.D., Univ. of Nebraska
PSY
- Lanzl, Lawrence H.
Ph.D., U. of Ill.-Cham/Urb
MPH, THER
- Largosa, Anastacia
M.D., Philippines
FAM
- Larramendi, Paloma
B.A., Spain
PHY
- Larson, Beth E.
M.D., U. of Minnesota
FAM
- Larson, John M.
M.D., U. of Illinois-Chgo.
ANES
- Larson, Paul R.
M.D., Michigan State U.
OBG
- Latash, Mark
Ph.D., Rush University
NEUS, PMR
- Later, Paul Evans
M.D., Rush University
NEU
- Lauder, Winifred
M.S.N., U. of Illinois-Chgo.
ORSN
- Lauderdale III, Vance
M.D., U. of Illinois-Chgo.
MED
- Lauer, Mary K.
M.N., Univ. of Washington
ORSN
- Lawinger, Sandra J.
M.S., Rush University
ORSN
- Lawrence, Arthur G.
M.D., Univ. of Chicago
SUR
- Lawson, Clyde
M.D., Meharry Medical Col.
OBG
- Lawson, Leonard J.
M.D., Meharry Medical Col.
OBG
- Lawton, Stanley E.
M.D., Rush University
SUR
- Layfer, Lawrence
M.D., Rush University
MED
- Lazar, Daniel Scott
M.D., Rush University
FAM, MED
- Lazarus, Lawrence W.
M.D., Hahnemann Univ.
PSY
- Le Sage, Joan
Ph.D., Texas Woman's Univ.
GERN
- Leavitt, Frank
Ph.D., Washington Univ.
PSYC
- Lecompte, Benjamin B.
M.D., Univ. of Virginia
NEUS
- Lee, Chang Bok
M.D., South Korea
OPHT
- Lee, Elaine Therese
M.D., Rush University
MED
- Lee, Myung-Sook
M.D., South Korea
MPH, THER
- Lee, Robert J.
M.D., U. of Illinois-Chgo.
OBG
- Lee, Trusten P.
D.D.S., Loyola U. of Chgo.
SUR
- Leff, Joel R.
M.D., U. of Illinois-Chgo.
PSY
- Leiken, Jerrold
M.D., Chgo. Medical Sch.
MED
- Leksas, Linda
Ph.D., U. of Illinois-Chgo.
PVM
- Lemberger, Terrence
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FAM

Alphabetical Faculty Listing

- Lemons, James A.
M.D., Northwestern Univ.
SUR
- Lenz, Mary Ellen
M.S., Univ. of Kansas
BCH
- Lepper, Mark H.
M.D., George Washington U.
HSM, MED, PVM
- Lerner, Wayne M.
D.P.H., U. of Michigan
HSM
- Leslie, William T.
M.D., Univ. of Oregon
MED
- Lessick, Mira
Ph.D., Univ. of Texas
MATN
- Lettieri-Marks, Donna
M.S., U. of Illinois-Chgo.
PSYN
- Lev, Maurice
M.D., Creighton University
MED, PATH, PED
- Leven, Robert M.
Ph.D., U. of Pennsylvania
ANAT, MED
- Levenberg, Pat
M.S., Univ. of Colorado
MATN
- Levin, Daniel Eric
M.D., Rush University
PSY
- Levin, Debra Frances
M.S., U. of Wisconsin
M.S., Rush University
ORSN
- Levin, Joel M.
M.D., U. of Illinois-Chgo.
MED
- Levin, Robert D.
M.D., Univ. of Chicago
MED
- Levin, Robert M.
M.D., Univ. of Missouri
PED
- Levin, Stuart
M.D., U. of Illinois-Chgo.
IMMC, MED, PVM
- Levine, Charlotte C.
M.D., Johns Hopkins Univ.
PVM
- Levine, Milton D.
M.D., Sc.D., Johns Hopkins U.
PVM
- Levine, Stanley R.
M.D., Tulane University
UROL
- Levis, Richard A.
Ph.D., U.C.L.A.
PHY
- Levitan, Ruven
M.D., Israel
MED
- Levitsky, Shari E.
M.D., Yeshiva University
MED
- Levitt, Leonard
M.D., Rush University
DERM
- Levitt, Leroy
M.D., Chgo. Medical Sch.
PSY
- Levy, Howard B.
M.D., U. of Illinois-Chgo.
PED
- Levy, Jerre
Ph.D., Calif. Inst. of Tech.
PED
- Levy, Richard A.
M.D., Univ. of New Orleans
MED, PED
- Lewandowski, Robert
M.S., Loyola U. of Chgo.
HSM
- Lewicky, Andrew O.
M.D., Northwestern Univ.
OPHT
- Lewis, Edmund J.
M.D., U. of British Columbia
MED
- Lewis, Mary
M.D., U. of Illinois-Chgo.
PED
- Lewis, Steven L.
M.D., Stanford Univ.
NEU
- Lewison, Gary R.
M.D., Chgo. Medical Sch.
MED
- Liang, James
M.D., U.C.L.A.
OPHT
- Liao, Thomas E.
M.D., Rush University
MED
- Libert, Samuel A.
M.D., Chgo. Medical Sch.
PSY
- Liebson, Philip R.
M.D., S.U.N.Y. Downstate
MED, PVM
- Lim, Diosdado
M.D., Philippines
PED
- Lim, Toh Hoai
M.B.B.S., Taiwan
MED
- Limp, Charles
M.D., U. of Illinois-Chgo.
PED
- Limperis, Chris E.
J.D., U. of Michigan
HSM
- Limpert, Jonathan D.
M.D., U. of Illinois-Chgo.
DIAG
- Lin, Sun Kuang
M.D., Taiwan
PED
- Lin, Yuan-Hwai
M.D., Taiwan
ANES
- Lincoln, Sarah T.
M.D., Rush University
MED
- Lindgren, Robert
M.D., Rush University
OBG
- Lint, Thomas F.
Ph.D., Tulane University
IMMC
- Lintjer, Gregory W.
M.H.A., Indiana U. of Penna.
HSM
- Lipkin, Julie
M.D., Italy
FAM
- Lipman, Richard M.
M.D., U. of Illinois-Chgo.
OPHT
- Lippner, Lewis A.
M.A., George Washington U.
HSM
- Lipton, Meryl E.
M.D., Med. Col. of Wisconsin
PED
- Lisowski, Jeffrey M.
M.D., Rush University
MED
- Litowitz, Bonnie E.
Ph.D., Northwestern Univ.
PSY
- Litwack, Kim P.
Ph.D., Kent State Univ.
ORSN
- Llewellyn, Jane
D.N.Sc., Rush University
ORSN
- Llewellyn, John W.
Ph.D., Univ. of Chicago
PVM
- Lloyd, Stephen R.
M.A., U. of Illinois-Chgo.
PSYC
- Lobstein, Otto E.
Ph.D., Northwestern Univ.
BCH
- Locke, Susan
M.D., Washington Univ.
FAM
- Loeff, Deborah S.
M.D., Rush University
SUR
- Loevy, Sara Segal
Dr.P.H., U. of Illinois-Chgo.
HSM
- Loew, Jerome
M.D., Pennsylvania State U.
PATH
- Lofgren, Katharine A.
M.S.W., U. of Illinois-Chgo.
FAM, PSY, PSYC
- Loghman-Adham, Mahmoud
M.D., France
PED

- London, Ruth
M.D., Israel
PED
- Long, John S.
M.D., U. of Illinois-Chgo.
OBG
- Longo, Kathleen
M.D., U. of Michigan
MED
- Lootens, David A.
M.D., Wayne State Univ.
MED
- Lopez, Carolyn C.
M.D., U. of Illinois-Chgo.
FAM
- Lopez, Marco A.
M.D., Cuba
FAM
- Lopez, Martita
Ph.D., Syracuse University
PSYC
- Lord, Richard W.
B.A., U. of No. Carolina
FAM
- Lourie, Lois A.
M.H.S.A., U. of Michigan
HSM
- Lubenow, Timothy R.
M.D., U. of Wisconsin -Milw.
ANES
- Lubens, Jonathan M.
M.D., Michigan State U.
MED
- Lubicky, John Peter
M.D., Thomas Jefferson U.
ORTH
- Lubin, Niva M.
M.D., Creighton Univ.
MED
- Lucero, Roger A.
M.D., Chgo. Medical Sch.
MED
- Luehrs, Susan M.
M.S., Rush University
MEDN
- Luken, Julie A.
M.D., U. of Illinois-Chgo.
PED
- Lukens, Abbie R.
M.D., Univ. of Chicago
PED
- Lunde, Mark
M.D., U. of Illinois-Chgo.
OPHT
- Lusk, Peggy
M.A., Syracuse Univ.
PSYN
- Luskin, Allan T.
M.D., U. of Illinois-Chgo.
IMMC, MED
- Lutkus, Edward R.
M.D., Loyola U. of Chgo.
FAM
- Lynch, Priscilla
M.S., St. Xavier Col.
PSYN
- Lyon, Susan T.
M.D., Rush University
OTO
- Ma, Jian Jie
Ph.D., Baylor Col. of Med.
PHY
- MacEntee, Peter F.
M.D., Ireland
FAM
- MacLean, Susan L.
Ph.D., West Hills College
MEDN
- MacLeod, Catherine M.
M.D., Univ. of Manitoba
MED, PHR
- MacMullen, Nancy
Ph.D., Loyola U. of Chgo.
MATN
- Mack, Stephen
Ph.D., New York University
OBG
- MacIn, Victoria
M.D., Southern Ill. Univ.
OBG
- Maddalozzo, John
B.S., Loyola U. of Chgo.
OTO
- Madden, Thomas
M.B.Ch., United Kingdom
FAM, MED, PVM
- Madhav, Gopal
M.B.B.S., India
MED
- Maffetone, Michael A.
D.A., Catholic U. of America
MTPT, PATH
- Maganini, Robert O.
M.D., Rush University
SUR
- Magolan, Janet M.
M.S., Rush University
ORSN
- Maibenco, Helen
Ph.D., U. of Illinois-Chgo.
ANAT
- Maikler, Virginia
Ph.D., U. of Illinois-Chgo.
MATN
- Maker, Vijay K.
M.B.B.S., India
SUR
- Malalis, Leonardo C.
M.D., Philippines
PED
- Malhotra, Madhu
M.B.B.S., India
MED
- Malik, Khadija
M.B.B.S., India
MED
- Malkinson, Frederick
M.D., Harvard University
DERM
- Mallett, Gordon M.
M.H.S.A., U. of Michigan
HSM
- Manaligod, Librada J.
M.D., Philippines
PED
- Mandel, Elias
B.S., McGill University
PED
- Mandelbaum, Stuart P.
M.D., Wayne State Univ.
PSY
- Mangoubi, Elie
M.D., Belgium
PSY
- Mann, Edward P.
M.D., U. of Illinois-Chgo.
OPHT
- Mansfield, Margo
M.A. Roosevelt Univ.
OCC
- Manshio, Dennis T.
Ph.D., Illinois Inst. of Tech.
FAM
- Manshio, Dennis T.
M.D., Mexico
FAM
- Manson, Sharon K.
M.S., Rush University
MEDN
- Maragos, Valerie A.
M.D., Tulane University
PMR
- Marathi, Pushpa
M.B.B.S., India
MED
- March, Robert J.
M.D., Rush University
CVT
- Marchmont-Robinson, H.
M.D., U. of Pennsylvania
SUR
- Margules, Kenneth R.
M.D., Chgo. Medical Sch.
MED
- Marinelli, Antony
M.D., Northwestern Univ.
MED
- Mariyappa, M. P.
M.B.B.S., India
PED
- Markey, William S.
M.D., Case Western Res. U.
MED
- Markovitz, David
M.D., Univ. of Arizona
MED
- Marschall, Stephanie F.
M.D., U. of South Florida
DERM
- Marshall III, Roland M.
M.D., U. of Illinois-Chgo.
PATH
- Marshall, Ingrid
Ph.D., West Germany
MPH, THER
- Marshall, J. Stephen
M.D., Southern Ill. Univ.
SUR

Alphabetical Faculty Listing

- Marshall, Julie
M.S., Boston College
ORSN
- Martin, Barbara
M.S., Rush University
ORSN
- Martin, John E.
M.D., U. of Illinois-Chgo.
MED
- Martin, Michael
M.D., U. of Illinois-Chgo.
MED
- Martin, Nell F.
M.D., U. of Colorado
ANES
- Martin, Patrick T.
M.D., Michigan State U.
PED
- Martin, Wayne S.
M.D., Foreign College
FAM
- Martin, William C.
M.D., U. of Colorado
ANES
- Martinazzo-Dunn, Anna
M.D., ITALY
PSY
- Martinez, Robert
M.D., U. of Illinois-Chgo.
FAM
- Martinez-Schallmoser, Lucy
M.S.N., Loyola U. of Chgo.
MATN
- Martirano Jr, Michael
M.D., Rush University
SUR
- Marwah, Birinder S.
M.B.B.S., Foreign College
MED
- Mason, Edward L.
M.D., U. of Illinois-Chgo.
FAM
- Mason, John W.
M.D., Case Western Res. U.
PATH
- Mason, Teresa J.
M.D., Loyola U. of Chgo.
MED
- Massey, Patrick Baber
M.D., Rush University
Ph.D., Northwestern Univ.
MED
- Matalon, Terence A.
M.D., Boston University
DIAG
- Matheson, Craig K.
D.O., Chgo. Col. of Osteo.
FAM
- Matheson, Michelle
D.D.S., Univ. of Iowa
SUR
- Matijevitch, Branislav
M.S., Yugoslavia
BCH
- Mattenheimer, Hermann
M.D., Ph.D., West Germany
BCH
- Matthew, Guy R.
M.D., Indiana Univ.
DIAG, MED
- Mattis, Richard C.
M.D., Loyola U. of Chgo.
MED
- Mattox, Suzanne P.
M.D., Loyola U. of Chgo.
MED
- Maxson, Ellen L.
M.S., St. Xavier College
PSYN
- Mayer, Robert S.
M.D., Northwestern Univ.
MED
- Mayerhofer, Kenneth E.
U. of Michigan
FAM
- Mazzone, Theodore
M.D., Northwestern Univ.
BCH, MED
- McAfee, David M.
M.D., Temple University
ANES
- McCarron, Edward J.
M.D., Dalhousie University
PMR
- McCabe, Mary
M.S., Rush University
MEDN
- McCarthy, Robert J.
D.Pharm., Purdue University
ANES, PHR
- McCarthy, William G.
M.D., Loyola U. of Chgo.
SUR
- McCaughey, Marcia
M.S., De Paul University
ORSN
- McCormick, Alice
M.D., Loyola U. of Chgo.
MED
- McCoy, James J.
M.D., Loyola U. of Chgo.
FAM
- McCreary, Patricia A.
M.D., Northwestern Univ.
MED, PVM
- McDonald, Gerald
M.D., Northwestern Univ.
SUR
- McErlean, Jeffrey A.
M.D., Northwestern Univ.
SUR
- McFolling, Sandra
M.S.N., U. of Illinois-Chgo.
CHN
- McGinness, Catherine
M.D., U. of Illinois-Chgo.
FAM
- McGinnis, Patrick L.
M.D., Northwestern Univ.
MED
- McGann, Dennis M.
B.S., George Washington U.
HSM
- McHale, Marnie
M.S., Rush University
MEDN
- McHugh, Rosemary E.
M.D., Ireland
FAM
- McInerney, John
D.O., Chgo. Col. of Osteo.
OBG
- McKenna, Rajalaxmi
M.D., INDIA
MED
- McKiel Jr. Charles F.
M.D., Loyola U. of Chgo.
UROL
- McLachlan, Daniel L.
M.D., Northwestern Univ.
OPHT
- McLaughlin, Margaret
M.D., Univ. of Chicago
MED
- McLeod, Bruce C.
M.D., Harvard University
MED
- McMillan, Foster L.
M.D., U. of Illinois-Chgo.
SUR
- McMillan, J. Charles
M.D., U. of Illinois-Chgo.
MED
- McNally, Randall E.
M.D., St. Louis Univ.
PLAS
- McNeill, Thomas
M.D., U. of Illinois-Chgo.
ORTH
- McPherson, Anne T.
M.S., Northwestern Univ.
MATN
- Mead, John D.
Ph.D., Washington St. U.
PED, PSYC
- Medenis, Vidvuds
M.D., West Germany
MED
- Meehan, Marjorie C.
M.D., Johns Hopkins Univ.
PSY
- Mehlinger-Mitchell, R.
M.D., U. of Illinois-Chgo.
PSY
- Mehra, Anju
M.B.B.S., India
MED
- Mehta, Mukundini
M.B.B.S., India
MED, OBG
- Meier, Werner
M.D., Peru
OBG, PED
- Meister, Michael D
M.D., U. of Illinois-Chgo.
ANES
- Meiszner, John W.
M.D., Loyola U. of Chgo.
PSY

- Melnick, Garry D.
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FAM
- Melyn, Michelle
M.D., U. of Illinois-Chgo.
NEU, PED
- Mendelson, Lisa Sigg
M.S., Rush University
ORSN
- Merai, Ghanshyam V.
M.B.B.S., India
FAM
- Mercer, Jeanne K.
M.D., U. of Illinois-Chgo.
PED
- Merchant, Zarina I.
New York University
PED
- Meredith, Paul A.
M.D., Northwestern Univ.
MED
- Merkel, Frederick K.
M.D., Johns Hopkins Univ.
IMMC, MED, SUR
- Merlotti, Gary J.
M.D., U. of Michigan
SUR
- Merrick, Frank W.
M.D., U. of Michigan
OBG
- Merricks, James W.
M.D., Rush University
UROL
- Mershon, Steven
M.D., Med. Col. of Ohio
PSY
- Merwick, Patricia A.
M.D., Northwestern Univ.
MED
- Meserow, James A.
M.D., Rush University
OBG
- Mesleh, George F.
M.B.Ch., Egypt
SUR
- Messer, Joseph V.
M.D., Harvard University
MED
- Mets, Marilyn
M.D., George Washington U.
OPHT, PED
- Metzger, Ted
M.D., S.U.N.Y. Upstate M. C.
DIAG
- Meyer, Dianne H.
Ph.D., Northwestern Univ.
CDS, OTO
- Meyer, John H.
M.D., Italy
MED, PVM
- Meyer, Nancy
M.S.N., Wayne State Univ.
GERN
- Meyer, William N.
M.D., U. of Cincinnati
MED
- Meyers, Steven Lee
M.D., Rush University
MED
- Michael, Belmina Nercy
M.D., Rush University
MED
- Michael, Joel A.
Ph.D., Mass. Inst. of Tech.
NEU, PHY
- Michaels, Henry M.
M.D., U. of Illinois-Chgo.
FAM
- Michalska, Malgorzata
M.D., Poland
MED
- Mikecz, Katalin
M.D., Ph.D., Hungary
ORTH
- Mikosz, Richard P.
Ph.D., U. of Illinois-Chgo.
ORTH
- Milianti, Franklin
Ph.D., U. of Oklahoma
CDS
- Miller, Alexander W.
M.D., U. of Illinois-Chgo.
PATH
- Miller, Avery S.
Ekon., Sweden
HSM
- Miller, Debbie L.
B.S., U. of Ill.-Cham/Urb
MED
- Miller, Edwin
M.D., Loma Linda Univ.
FAM
- Miller, Elinor
M.D., Cornell Univ.
MED
- Miller, Herbert J.
Ph.D., Northwestern Univ.
MTPT
- Miller, Jack M.
M.D., U. of Illinois-Chgo.
OBG
- Miller, Paul E.
M.D., U. of Illinois-Chgo.
ANES
- Miller, Raymond N.
M.D., U. of Illinois-Chgo.
PSY
- Miller, Robert
M.D., Va. Commonw'lth U.
ORTH
- Miller, Robert A.
M.D., Northwestern Univ.
PED
- Miller, William M.
M.D., U. of Illinois-Chgo.
PATH
- Millikan, Keith W.
M.D., Rush University
SUR
- Milloy, Frank J.
M.D., Northwestern Univ.
CVT
- Minnick, Ann M.
Ph.D., U. of Illinois-Chgo.
ORSN
- Minton, Paula
M.S.N., Northern Ill. Univ.
MEDN
- Mintz, Ari D.
M.D., Northwestern Univ.
DIAG
- Misch, Donald
M.D., Rush University
PSY
- Mitchanis, Mary Ellen
M.D., Rush University
MED
- Mixon, Diana
M.S., Northern Ill. Univ.
MEDN
- Mizen, Thomas R.
M.D., Chgo. Medical Sch.
NEUS, OPHT
- Mlcoch, Anthony G.
Ph.D., Purdue Univ.
CDS
- Modi, Hareesh
M.B.B.S., India
PED
- Mok, Young He
M.D., South Korea
PED
- Mokry, Cyrus
M.D., India
FAM
- Moline, Bryan G.
M.D., U. of Illinois-Chgo.
MED
- Mollenbauer, Jurgen
Ph.D., West Germany
BCH
- Mollohan, William H.
D.O., San Jose City Col.
FAM
- Molnar, Marija V.
M.D., Yugoslavia
OBG
- Molo, Mary Wood
M.D., Southern Ill. Univ.
OBG
- Mon, Donald T.
B.A., San Francisco St. U.
HSM
- Monroe, Clarence W.
M.D., Rush University
PLAS
- Monson, David O.
M.D., U. of Minnesota
CVT
- Montana, Louis Ciaccia
M.D., Rush University
SUR
- Montgomery, Lynne D.
M.Ed., Loyola U. of Chgo.
CDS, HSM
- Monticciolo, Debra L.
B.A., Wayne State Univ.
DIAG

Alphabetical Faculty Listing

- Moolayil, Kumar D.
M.B.B.S., India
PSY
- Moon, Byong H.
Ph.D., Washington St. U.
MED, PHR
- Mooney, Gabriel O.
M.B., Ireland
PLAS
- Moore, Janet Silliman
Ph.D., Univ. of Arizona
GERN.
- Moore, Kenneth L.
M.D., Univ. of Chicago
MED, NEU
- Moran, Thomas E.
M.D., Loyola U. of Chgo.
PATH
- Morch, E. Trier
M.D., Denmark
ANES
- Morgan III, J. David
M.D., Ohio State Univ.
MED
- Morgenstern, Sidney
M.D., United Kingdom
ORTH
- Morley, Colin
Ph.D., Australia
BCH, CEL, PHR
- Morreale, Barbara
M.S., Rush University
ORSN
- Morreale, Carol L.
MA Northwestern Univ.
CDS
- Morrell, Frank
M.D., Columbia Univ.
NEU
- Morris, Arthur M.
B.A., Columbia Univ.
MED
- Morrison, Caroline M.
M.D., Univ. of Missouri
PSY
- Morrison, David
M.D., U. of Southern Cal.
PSY
- Morton, Timothy Joseph
M.D., Rush University
ORTH
- Moss, Percy C.
M.D., Meharry Medical Col.
OBG
- Moy, James N.
M.D., U. of Illinois-Chgo.
IMMC, MED, PED
- Mozwecz, Jeffery
M.D., Loyola U. of Chgo.
MED
- Mozwecz, Monica A.
M.D., U. of Illinois-Chgo.
FAM
- Muehrcke, Allan O.
M.D., Rush University
MED
- Muehrcke, Robert C.
M.D., U. of Illinois-Chgo.
MED
- Mueller, Christine M.
M.D., U. of Illinois-Chgo.
FAM
- Mueller, Kathryn L.
M.D., Univ. of Nebraska
FAM
- Mueller, Laura
M.S.N., U. of Pennsylvania
MATN
- Mueller, Paul L.
M.D., Ohio St. Univ.
PED
- Mueller, Rudolph J.
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MED
- Muir, Richard
MHA Georgia State U.
HSM
- Munir, Seema
D.O., Chgo. Col. of Osteo.
FAM
- Munoz, Jose N.
M.D., Philippines
FAM
- Murlas, Christopher G.
M.D., Stanford Univ.
MED
- Murphy, Marcia
M.S., Rush University
MEDN
- Murphy, Patrick B.
M.D., U. of Tennessee
MED
- Murphy, Peter
M.D., United Kingdom
ANES
- Murray, Joan C.
M.D., Rush University
MED
- Murray, Linda R.
M.D., U. of Illinois-Chgo.
MED
- Murray, Meredith B.
M.D., Loyola U. of Chgo.
OBG
- Murthy, Anantha K.
M.B.B.S., India
MPH, THER
- Muscarello, Vincent
M.D., Loyola U. of Chgo.
MED
- Mustafa, Mohammad A.
M.B.B.S., Pakistan
PED
- Muthuswamy, Petham
M.B.B.S., India
MED
- Naber, Sarah
Ph.D., U. of Illinois-Chgo.
MATN
- Nagaraju, Ramalingappa
M.D., INDIA
MED
- Nagel Jr., B. Michael
M.D., Loyola U. of Chgo.
OBG
- Naidu, Vasantha
M.B.B.S., India
PED
- Najafi, Hassan
M.D., Iran
CVT
- Nama, Prabhavathi
M.B.B.S., India
OBG
- Narayan, M. S. Laxmi
M.B.B.S., India
PED
- Nasralla, Nahim H.
M.D., Honduras
SUR
- Natarajan, Raghunatha
Ph.D., India
ORTH
- Nathan, John E.
D.D.S., Northwestern Univ.
PED, SUR
- Neal, Richard H.
M.D., Univ. of Chicago
MED
- Nebblett, Edwin E.
M.D., Loma Linda Univ.
FAM
- Necas, Kevin J.
M.B.A., Northwestern Univ.
HSM
- Nedza, Susan M.
M.D., Loyola U. of Chgo.
FAM
- Neerukonda, Sujatha
M.B., India
PMR
- Neguina, Noel D.
M.D., Philippines
MED
- Neill, William A.
M.D., Cornell Univ.
MED
- Nell, Patricia A.
M.D., Univ. of Iowa
IMMC, PED
- Nelson, Bertram
M.D., Rush University
MED
- Nelson, Delbert H.
M.D., U. of Illinois-Chgo.
FAM
- Nelson, Glenn E.
M.D., Loyola U. of Chgo.
FAM
- Nelson, Jeffrey A.
M.D., U. of Illinois-Chgo.
MED
- Nelson, Joan
M.S.N., De Paul Univ.
ORSN
- Nelson, Karen B.
M.D., U of Calif.-San Fran.
PED, PVM

- MED, PVM
Nelson, Kenneth S.
M.D., U. of Illinois-Chgo.
FAM
Nelson, Linda L.
M.S., Univ. of Rochester
CHN
Nelson, Michael N.
Ph.D., U. of Wisconsin
PED, PSYC
Nelson, William J.
M.D., Loyola U. of Chgo.
FAM
Nemri, Mourice S.
M.D., Italy
PED
Neri Jr., Gilberto S.
M.D., Philippines
Neu, Jeffrey
M.D., U. of Illinois-Chgo.
MED
Neudorf, Howard
M.D., U. of Ill.-Cham/Urb
FAM
Nevalainen, David
Ph.D., U. of Minnesota
PATH
Newman, Ann H.
M.S.N., Washington Univ.
PSYN
Newman, Daniel C.
M.D., U. of Michigan
ORTH
Newman, J. Christopher
M.F.A., U. of Pennsylvania
M.B.A., Univ. of Chicago
HSM
Newman, Julius S.
M.D., U. of Illinois-Chgo.
FAM, MED
Newman, L. Michael
M.D., Wayne State Univ.
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ANES
Newman, Michael
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OBG
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FAM
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M.D., Soviet Union
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M.D., Northwestern Univ.
SUR
Nicholas, John Jeffrey
PMR
Nichols, Jack L.
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HSM
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M.D., Loyola U. of Chgo.
MED
Nielsen, Thomas J.
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OTO
Nighorn, Sharon
M.S., U. of Illinois-Chgo.
PSYN
Niles, Walter D.
Ph.D., U. of Wisconsin
PHY
Nolan, A. Clark
M.D., McGill University
MED
Nolinske, Terrie L.
M.A., Northwestern Univ.
OCC
Nootens, Mark T.
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MED
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OPHT, PHR
Nora, Lois Margaret
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J.D.,
NEU
Nora, Maris V.
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PHR
Norman, Earl M.
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SUR
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M.B.B.S., India
PED
Norris-Berkemyer, Sheila
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MATN
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MED, OBG
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Ph.D., U. of Michigan
PVM
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M.S., Natl. Col. of Educ.
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OBG
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OPHT
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PSY
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PSYC
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M.S., Univ. of Maryland
MATN
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OPHT
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NEU, PED
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OPHT
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MED
Panton, John H.
M.D., Greece
OPHT
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M.D., Rush University
MED
Papierniak, Frank B.
M.D., Case Western Res. U.
UROL
Pappas, Patroklos
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CVT
Parisi, Bruce A.
M.D., Mexico
FAM
Parke, Barbara
M.D., Chgo. Medical Sch.
PMR
Parker, Mary
M.S.N., Southern Ill. Univ.
ORSN
Parkhurst, George W.
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PHR
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NEUS

Perez, Andrew A.
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M.S.N., Loyola U. of Chgo.
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Perlin, Michael Alan
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ANES

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PSYN

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HSM

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M.D., Chgo. Medical Sch.
UROL

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PED

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MEDU. of Ill.-Cham/Urb
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MED

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MED

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THER

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THER

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MED

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CVT

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Pierce, Scott M.
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MED, PED

Pierpaoli, Paul G.
M.S., Michigan State U.
HSM, PHR

Pierre-Louis, Serge
M.D., Haiti
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ORTH

Pilar, Prospero B
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Pildes, Robert B.
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ANES
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PSYN
- Plante, John P.
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UROL
- Plate, Charles A.
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MED
- Plate, Janet
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IMMC, MED
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M.D., U. of Illinois-Chgo.
MED
- Plunkett, Michael J.
M.D., U. of Illinois-Chgo.
FAM
- Pobanz, Donovan M.
M.D., Indiana Univ.
MED
- Pollock, George H.
M.D., Ph.D., U. of Ill.-Chgo.
PSY
- Pomerantz, Marc A.
M.D., Temple University
SUR
- Pomerantz, Rhoda S.
M.D., Medical Col. of Penna.
MED, PVM
- Ponsiglione, John D.
M.D., Chgo. Medical Sch.
MED
- Pool, Ellis
M.Ed., U. of Missouri
CNTR
- Pool, Mark D
M.D., Southern Ill. Univ.
PATH
- Popper, Michael S.
M.D., U. of Illinois-Chgo.
MED
- Port, Jeffrey H.
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MED
- Porter, Kenneth B.
B.S., Univ. of Maryland
PED
- Post, John
M.D., Univ. of Chicago
PVM
- Post, Melvin
M.D., Chgo. Medical Sch.
ORTH
- Pottage Jr., John
M.D., St. Louis Univ.
IMMC, MED
- Poulos, Denise Marie
M.D., Rush University
OBG
- Poulos, George T.
M.D., Greece
FAM
- Poulson, Elizabeth
M.A., U. of Michigan
ORSN
- Poulson, Elizabeth
M.S., U. of Illinois-Chgo.
ORSN
- Pouw, Tie An
M.D., West Germany
MED
- Prancan, Arthur
Ph.D., U. of Oklahoma
PHR
- Prasad, Neerukonda
M.B.B.S., India
ANES
- Preston, Adrienne L.
M.D., U. of Illinois-Chgo.
MED
- Priest, Fred O
M.D., Rush University
OBG
- Prince, Clifford
D.D.S., Loyola U. of Chgo.
SUR
- Principe, John
M.D., Rush University
MED
- Prodromos, Chadwick
M.D., Johns Hopkins Univ.
ORTH
- Proko, Thomas J.
M.B.A., Univ. of Chicago
HSM
- Proteau, Roseanne V.
M.D., Loyola U. of Chgo.
PED, PVM
- Puc, Frank C.
M.D., Loyola U. of Chgo.
PED
- Pucci, Rita
M.D., Rush University
SUR
- Puray, Milagros D.
M.D., Philippines
MED
- Purl, Sandy E.
M.S., Pace University
MEDN
- Pushkin, Edward A.
M.D., Va. Commonw'lth U.
OPHT
- Putnam, Frank W.
M.D., Indiana Univ.
PSY
- Pyati, Prahlad
M.B.B.S., India
ORTH
- Quandt, Fred N.
B.S., Pennsylvania State U.
PHY
- Quinn, Lauretta
M.S., Rush University
MEDN
- Quinones, Jose A
M.D., Mexico
PED
- Rabbat, Adel
M.B.Ch., Egypt
FAM
- Rabin, David N.
M.D., U. of Illinois-Chgo.
DIAG
- Radfar, Baroukh
M.D., Iran
PED
- Radhakrishnan, Jayant
M.B.B.S., India
SUR
- Radnitzer, Crystal D.
M.D., Loyola U. of Chgo.
MED
- Radvila, Izolda M.
M.D., U. of Illinois-Chgo.
OPHT
- Radwanska, Ewa
M.D., Poland
OBG
- Rae, Carolyn F.
M.D., Loyola U. of Chgo.
MED
- Rafelson Jr, Max E.
Ph.D., U. of Southern Cal.
BCH
- Rahn, Ada
M.D., Rush University
MED
- Raines, Dale S.
M.D., Indiana Univ.
MED
- Raines, Robert A.
M.D., U. of Calif.-San Diego
MED
- Raiss, Ruth Xenia
Ph.D., West Germany
BCH
- Rajan, Padmini
M.B.B.S., India
MED
- Rajendra, Rangappa
M.D., India
MED
- Raju, R. Subba
M.D., U. of Illinois-Chgo.
DIAG
- Ramakrishna, B.
M.B.B.S., India
MED
- Ramana, Pabbisetty V.
M.B.B.S., D.Ch., India
PED
- Ramsey, Michael M.
M.D., Northwestern Univ.
MED
- Ramunis, Jerry
M.D., West Germany
FAM
- Rana, Nasiruddin
M.D., Pakistan
OBG
- Range, Charles L.
M.D., Loyola U. of Chgo.
FAM, MED

Alphabetical Faculty Listing

- | | | |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------|
| Rao, Nagulapalli S
M.B.B.S. India
SUR | Reed, Byron
M.D., U. of Illinois-Chgo.
MED | Rice, David J
J.D., Loyola U. of Chgo.
HSM |
| Rao, Noel
M.B.B.S., India
PMR | Reed, William R.
M.D., Louisiana College
MED | Richard, Angelique L.
M.S., Rush University
MEDN |
| Rao, Sripathy
M.D., India
PED | Reese, Thomas C.
M.D., U. of Illinois-Chgo.
MED | Richards, John W
M.D., S.U.N.Y. at Buffalo
SUR |
| Rao, Vijaykumar M.
M.D., India
MED | Regal, Edward M.
M.D., U. of Illinois-Chgo.
MED | Richards, Wendy A.
M.D., Univ. of Chicago
FAM |
| Rascon, Daniel
M.B.P., Michigan State U.
REL | Rehman, Syed M.
M.B.B.S., Pakistan
PED | Richardson, Fred, Jr.
M.D., Rush University
FAM |
| Rastogi, Alok
M.B.B.S., India
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M.S., Rush University
GERN | Richardson, Robert R.
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NEUS |
| Ratajik, Alyda R.
M.D., U. of Illinois-Chgo.
PED | Reid, Robert H.
M.D., Cornell Univ.
MED | Richman, Carol M.
M.D., Washington Univ.
MED |
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M.D., India
D.Ch., United Kingdom
PED | Reifman, Robert A.
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PSY | Richmond, G. Wendell
M.D., U. of Oklahoma
IMMC, MED |
| Ratner, Mark
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PHY | Reimann, Dawn E.
M.S., Rush University
MATN | Richter, Michael A.
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OBG |
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PSY | Reiner, Yvette
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M.D., Case Western Res. U.
DERM | Reinstein, Michael J.
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M.D., West Germany
FAM |
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ANAT, OBG | Reisberg, David J.
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PLAS, SUR | Rieckmann, Karl H. W.
M.D., Australia
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PHR |
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M.D., Univ. of Chicago
MED | Riehs, Steven
B.S., Northwestern Univ.
HSM |
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NEU | Rejowski, James E.
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M.D., Chgo. Medical Sch.
MED |
| Raymond, Michael K.
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MED | Remijas, Tracy L.
MPHU. of Illinois-Chgo.
PVM | Rife, Susan B.
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FAM |
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DIAG, MPH | Rennie, I. Drummond
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MED |
| Razim, Edward A.
M.D., Northwestern Univ.
OTO | Renwick, Barbara A.
M.D., U. of Wisconsin
FAM | Riker, Lauren P.
M.S., U. of Michigan
MED |
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M.D., U. of Illinois-Chgo.
MED | Resnick, Kenneth I.
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OPHT | Riley, Shawn Francis
M.D., Rush University
OPHT |
| Rebeck, Barry M.
B.S., Syracuse Univ
PSY | Retzky, Sandra S.
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OBG | Rinaldi, David
M.D., West Germany
PED |
| Reddy, Salitha
M.B.B.S., India
THER | Reyes, Marcelino G.
M.D., Philippines
NEU | Ripeckyj, Andrew
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PSY |
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ORTH | Reynolds, Albert
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MED | Riskin, Barry Jay
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NEU |
| | Rezabek, Karen
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- Roach, Donna M.
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HSM
- Roberg, Norman B.
M.D., Rush University
MED
- Roberg, O. Theodore
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SUR
- Roberts, Jack C.
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HSM
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ORTH
- Robinson, Margaret C.
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- Rodby, Roger
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- Rodriguez, E. Rene
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MED, PATH
- Rodriguez, Juan A.
M.D., Cuba
SUR
- Rodts, Mary M.
M.S., Rush University
ORSN
- Rodts, Thomas L.
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ORTH
- Rogers, Jill K.
M.S.N., Michigan State U.
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OBG
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M.D., Spain
PED
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FAM
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- Rose, Raymond F.
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ANES
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- Rose, William H.
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DIAG
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MED
- Rosman, Joseph K.
M.D., U. of Illinois-Chgo.
MED
- Rossof, Arthur H
M.D., U. of Illinois-Chgo.
MED
- Rotenberg, Morrey L
M.D., Ohio State Univ.
MED
- Roth, Andrew A.
M.D., Loyola U. of Chgo.
OBG
- Roth, Burton S.
M.D., Chgo. Medical Sch.
OBG
- Roth, Mary B.
M.S., Natl. Col. of Educ.
OCC
- Roth, Sharon B.
M.S., Boston University
GERN
- Rothchild, John A.
D.D.S., U. of Illinois-Chgo.
SUR
- Rothenberg, David M.
M.D., U. of Illinois-Chgo.
ANES
- Rothenberg, Saul
Ph.D., New York University
PSYC
- Rothman, Richard J.
M.D., Pennsylvania St. U.
OPHT
- Rothschild, Steven K.
M.D., U. of Michigan
FAM
- Rotman, Carlos A.
M.D., Argentina
OBG
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PHY

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B.S., St. Xavier College
MED

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MED

Roy, Shirley A.
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MED

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Ph.D., Chgo. Medical Sch.
MPH, THER

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D.V.M., Iowa State Univ.
Ph.D., Connecticut Col.
PATH

Rubenstein, Jonathan B.
M.D., Rush University
OPHT

Rubenstein, Marvin
Ph.D., U. of Illinois-Chgo.
BCH, UROL

Rubenstein, Albert I.
M.D., Univ. of Maryland
PATH

Rubin, David B.
M.D., Rush University
MED, THER

Rubin, Diane Linda
M.D., Howard University
MED

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M.S., U. of Cal.-Berkeley
GERN

Rubino, Domenica Marie
M.D., Rush University
MED

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OBG

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FAM

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M.D., Johns Hopkins U.
MED

Russell, Hugh D.
M.D., Rush University
MED

Russell, Patricia L.
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MED

Russo, Martin T.
D.O., Chgo. Col. of Osteo.
FAM

Ryan, Edward C.
M.D., U. of Illinois-Chgo.
OBG

Ryan, Norman
B.A., U. of Ill.-Cham/Urb
FAM

Ryan, Will G.
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MED

Rybarczyk, Bruce D.
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Ryd, Wesley H.
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FAM

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MED

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MED

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OBG

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UROL

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OBG

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Seltzer, James E. D.O., Chgo. Col. of Osteo. OBG	Sharon, Pinhas M.D., Israel MED	Shorey, William D. M.D., Harvard University SUR
Semel, Jeffrey D. M.D., Univ. of Chicago MED	Shaw, Deborah M.S.N., Indiana Univ. ORSN	Shorr, Gail Joyce M.D., U. of Illinois-Chgo. PED
Serratto-Benvenuto, M. M.D., Italy PED	Shearon, Kenneth D.D.S., Northwestern Univ. SUR	Short, John J. M.M., Northwestern Univ. HSM
Serry, Cyrus M.D., Iran CVT	Sheinkop, Mitchell B. M.D., Chgo. Medical Sch. ORTH	Short, Ronald M. M.D., Hahnemann Univ. MED
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Sha, Beverly E. M.D., Johns Hopkins Univ. MED	Shenker, David M M.D., Tufts University NEU	Shufeldt, John J. M.D., Chgo. Medical Sch. FAM
Shafer, Sid J. M.D., U. of Illinois-Chgo. ORTH	Shepherd, Sandra K. Ph.D., Pennsylvania St. U. CNTR	Shulman, Morton M.D., U. of Illinois-Chgo. ANES
Shah, Ila Ashok D.Ped., India PED	Sher, Tamara M.A., U. of North Carolina PSYC	Shulman, Robert B. M.D., Chgo. Medical Sch. PSY
Shah, Jagdish R. M.D., India MED	Sheridan, Patrick M.D., Rush University MED	Shulruff, Reeve N. M.D., Northwestern Univ. PED
Shah, Mahendra M. M.S., India MED	Sherin, Kevin M.D., Loyola U. of Chgo. FAM	Shum, Norine M.S., De Paul Univ. HSM
Shah, Rajendra M. M.B.B.S., India PLAS	Shevchenko, Valeri M.D., Foreign College BCH	Shvartsman, Leonid M.D., Soviet Union PSY
Shahinpour, Nayereh M.S.N., Wayne State Univ. MEDN	Shewmake, Floyd M.D., U. of Illinois-Chgo. MED	Sidell, Richard M.D., Wayne State Univ. ORTH
Shallat, Charles H. M.D., U. of Illinois-Chgo. MED	Shicker, Louis B.A., Israel MED	Siegel, Irwin M.D., Northwestern Univ. NEU, ORTH
Shannon, Iris Ph.D., Univ. of Chicago HSM, CHN	Shidler, Helen M.S., Rush University MEDN	Siegel, Joan Ph.D., U. of Massachusetts IMMC, MTPT
Shapiro, Jules S. M.D., U. of Illinois-Chgo. ORTH	Shindollar, Joyce M.B.A., Rosary College HSM	Siegel, Sandra C. M.A., Northern Ill. Univ. PED
Shapiro, Roberta J. M.P.H., Yale University M.B.A., Univ. of Chicago HSM	Shiomoto, Gail M. M.D., U. of Illinois-Chgo. MED	Siegfried, J David M.D., U. of Illinois-Chgo. MED
Shariff, Nayeem M.D., India FAM	Shirey, Richard M.B.A., De Paul Univ. HSM	Sietsema, Dale A. B.S., U. of Illinois-Chgo. HSM
Sharma, Paru M.B., India MED	Shivde, Pinakini S. M.D., India PED	Siglin, Martin G. M.D., Rush University MED
Sharma, Rajesh M.B.Ch., Kenya MED	Shmigelsky, Irene M.D., U. of Illinois-Chgo. PED	Silerzio, Paula M.O.T., Western Michigan U. OCC

- Silins, Astrida I.
M.D., West Germany
ANES
- Silins, V. Raymond
M.D., West Germany
MED
- Silver, Bruce A.
M.D., Loyola U. of Chgo.
DIAG
- Silver, Michael
M.D., Albany Med. Col.
MED
- Silverstein, Burton
Ph.D., Southern Ill. Univ.
PMR
- Silvestri, Jean M.
M.D., U. of Pittsburgh
PED
- Simental, Lilia
B.S., Rush University
GERN
- Simon, Gerald J.
M.D., Loyola U. of Chgo.
MED
- Simons, Nadine Marie
M.D., U. of Wisconsin -Milw.
CHN
- Simons, Virginia A.
M.S.W., U. of Tennessee
PSY
- Simonton, Leslie
M.D., U. of Illinois-Chgo.
OBG
- Simoton, Ronald L.
D.O., Chgo. Col. of Osteo.
FAM
- Simpson, Steven Q.
M.D., Univ. of Kansas
MED
- Singh, Rama S.
M.B.B.S., India
PED
- Sinioris, Marie E.
M.P.H., U. of Illinois-Chgo.
HSM
- Sinkora, Glenda
M.S., Rush University
ORSN
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M.D., U. of Minnesota
MED
- Sirota, Ronald L.
M.D., Johns Hopkins Univ.
PATH
- Sittler, Stephen S.
M.D., Case Western Res. U.
MED
- Sivan, Abigail B.
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PSY, PSYC
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MED
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PED
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GERN
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OCC
- Skipor, Anastasia K.
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ORTH
- Skuba, Thomas D.
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MED
- Skul, Bozica
M.D., Yugoslavia
FAM
- Skul, Vesna
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MED
- Sky Peck, Howard H.
Ph.D., U. of Southern Cal.
BCH
- Slaby, James A.
M.D., Northern Ill. Univ.
SUR
- Slack, Jeanne
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MATN
- Slivnick, Barbara Yate
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PED
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MED
- Slutsky, Joel N.
M.D., Mexico
UROL
- Smeltzer, Carolyn H.
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MEDN
- Smith, Claire S.
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DIAG
- Smith, Earl C.
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MED
- Smith, Gregory E.
M.D., Howard University
FAM
- Smith, Joyce M.
M.D., U. of Ill.-Cham/Urb
PED
- Smith, Michael C.
M.D., Rush University
NEU
- Smith, Xavier P.
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MEDN
- Snapp, Marshall
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- Snell, R Jeffrey
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BCH., MED
- Snyder, Leonard
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SUR
- Snyder, Marsha
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MED
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MED
- Sokovich, Ronald S.
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UROL
- Solliday, Norman H.
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BCH
- Talbert, Ellis
M.D., Rush University
FAM
- Tamragouri, Ravikiran N.
M.D., Foreign College
MED
- Tanck, Erik N
M.D., U. of Wisconsin
SUR
- Tang, Johnny M
Ph.D., Rush University
PHY
- Tangney, Christine
Ph.D., Virg. Poly Inst /St. U.
CNTR
- Tanner, Caroline M.
B.S., Loyola U. of Chgo.
NEU
- Tanner, Lydia
M.S., Rush University
CHN
- Tapia, Sakina S.
M.D., India
PED
- Tarnow, Jane
D.N.Sc., Rush University
ORSN
- Tarun, Donald
M.D., U. of Illinois-Chgo.
MED
- Tarzynski, Marian S.
M.D., Italy
MED
- Tausk, Kasriel
M.D., Italy
MED
- Taylor III, Samuel G.
M.D., Univ. of Chicago
MED
- Taylor IV, Samuel G.
M.D., U. of Saskatchewan
MED
- Taylor, Douglas W
M.D., Univ. of Texas
FAM
- Taylor, Glenn C
M.B.A., Lake Forest Col.
HSM
- Templeton, Alexander C.
M.B.B.S., United Kingdom
PATH
- Templeton, Kimberly J.
M.D., Univ. of Missouri
SUR
- Tenta, Louis T.
M.D., Indiana Univ.
OTO
- Tenzer, Penny
M.D., Israel
FAM
- Teplitz, Eric
M.D., U. of Illinois-Chgo.
MED
- Terman, Mari D.
M.B.A., Northwestern Univ.
HSM
- Tess, Maureen M.
M.S., U. of Illinois-Chgo.
MEDN
- Thampy, Kishore J.
M.B.B.S., Spain
PSY
- Theorell, Catherine
M.S.N., Loyola U. of Chgo.
MATN
- Thomas Jr, William
M.D., Boston University
PATH
- Thomas, Charlene
M.S.N., U. of Illinois-Chgo.
ORSN
- Thomas, Charles Richard
M.D., U. of Illinois-Chgo.
MED
- Thomas, John A.
Ph.D., Univ. of Iowa
PHR
- Thomas, Larry L.
Ph.D., U. of Illinois-Chgo.
IMMC
- Thomas, Sharon Y.
M.D., U. of Illinois-Chgo.
FAM
- Thompson, Dennis S.
D.O., Chgo. Col. of Osteo.
PSY
- Thompson, Lee D.
Ph.D., Indiana Univ.
HSM
- Thompson, Ray E.
M.D., U. of Illinois-Chgo.
MED
- Thompson, Walter C.
M.D., Loma Linda Univ.
FAM
- Thomson, Andrew
M.D., Indiana Univ.
MED
- Thomson, Cameron
M.D., U. of Illinois-Chgo.
MED
- Thunder, Thomas D.
M.A., Northern Ill. Univ.
CDS
- Tiesenga, Marvin
M.D., U. of Illinois-Chgo.
SUR
- Tilkin, Jeffrey M.
M.D., U. of Illinois-Chgo.
PSY
- Timm, Stuart
M.D., Indiana Univ.
MED
- Timmons, John A.
M.D., Rush University
MED
- Tiruvury, Anuradha
M.B.B.S., India
PED
- Tomeo, Jay
M.D., Loyola Marymount U.
FAM
- Topel, Jordan L.
M.D., Loyola U. of Chgo.
NEU
- Torczynski, Elise
M.D., U. of Wisconsin -Milw.
OPHT

Alphabetical Faculty Listing

- Tordecilla, Lydia
M.S., De Paul Univ.
GERN
- Torres, Hernando
M.D., Colombia
NEUS
- Trafimow, Jordan H.
M.D., U. of Illinois-Chgo.
ORTH
- Trager, Eugene P.
M.D., U. of Illinois-Chgo.
PSY
- Trakas, Demetrius A.
M.D., Greece
PSY
- Trenholme, Gordon M.
M.D., Marquette Univ.
MED, PHR
- Tresley, Jack
M.D., U. of Illinois-Chgo.
OPHT
- Trivedi, Dinker A.
M.B.B.S., India
MED
- Troyk, Philip R.
Ph.D., U. of Illinois-Chgo.
NEUS
- Trubitt, Mitchell J.
M.D., U. of Illinois-Chgo.
MED
- Trubow, Leslie N.
M.D., Rush University
PED
- Truchly, Vasil
M.D., West Germany
OBG
- Trufant, John E.
Ed.D., Univ. of Florida
HSM
- Trufant, Judy
M.N., Univ. of Florida
MATN
- Trusewych, Timothy B.
D.O., Chgo. Col. of Osteo.
MED
- Tsai, An Kon
M.D., Taiwan
FAM
- Tsai, Houn
M.D., Taiwan
ANES
- Tucker, W. Randolph
M.D., U. of Cincinnati
MED
- Tuman, Kenneth J.
M.D., U. of Illinois-Chgo.
ANES
- Tunestam, Nils J.
M.D., Sweden
PED
- Turek, Louis H.
M.D., Chgo. Medical Sch.
FAM
- Turner, David A.
M.D., Univ. of Chicago
DIAG
- Turner, Fred J.
M.D., Rush University
ORTH
- Turner, Irene R.
M.T., Radcliffe College
PVM
- Turner, Thomas M.
D.V.M., Auburn Univ.
ORTH
- Twiss, Alston C.
M.D., Temple University
MED
- Tyler, Lamont A.
D.O., Chgo. Col. of Osteo.
FAM
- Tyszka, Thomas S.
M.D., U. of Illinois-Chgo.
MED
- Uchitelle, Robin
M.D., Southern Ill. Univ.
FAM
- Uebele, Joan A
M.S., U. of Illinois-Chgo.
ORSN
- Uebelhart, Daniel
M.D., Switzerland
BCH, MED
- Ulsafer-Van Lanen, Jane
M.S., U. of Colorado
PSYN
- Upadhyaya, Varsha V
M.B.B.S., India
OBG
- Upadhyaya, Vinod P.
M.B.B.S., India
PED
- Urbon, John
Ph.D., Carnegie-Mellon U.
MPH, THER
- Uretz, Eugene F.
M.S., Univ. of Chicago
MED
- Valentino, Leonard A.
M.D., Creighton Univ.
MED, PED
- Vallina, Van
M.D., U. of Illinois-Chgo.
SUR
- Van Peenen, Peter F.
M.D., U. of San Francisco
PVM
- VanAnrooy, Michael
M.D., Rush University
ORTH
- VanValen, Phebe
Ph.D., Columbia Univ.
MED
- Vanderberg Dent, Susan
M.D., U. of Illinois-Chgo.
FAM
- Vanderlaan, Burton F.
M.D., U. of Illinois-Chgo.
MED
- Vasan, Ushanalini
M.B.B.S., D.C.H., India
PED
- Vazquez, Juan J.
M.D., Spain
PSY
- Velada, Pedro I.
M.D., Philippines
PED
- Velasco, Jose
M.D., Ph.D., Spain
SUR
- Velde, Therese M.
M.S., Arizona State U.
CDS
- Veldman, Mark T.
D.O., Chgo. Col. of Osteo.
FAM
- Vellody, Kunbunni
M.B.B.S., India
PED
- Venkataraman, Munusamy
D.V.M., Ph.D., India
IMMC, MED
- Vento, Elio G.
M.D., Italy
OBG
- Venzon, Michael A.
M.S., Northwestern Univ.
HSM, PMR
- Vercelli, Kenneth
M.D., Rush University
MED
- Vercoe, James L.
M.D., U. of Michigan
PED
- Veres-Thorner, C.
M.D., Michigan State U.
MED
- Vidaver-Cohen, Doris
M.A., U. of Michigan
NEU
- Vidinli, Mustafa
M.D., Turkey
MED
- Vierling, Timothy E.
M.D., St. Louis Univ.
OBG
- Viernes, Ann L
M.S., De Paul Univ.
MTPT
- Villaflor, Edward
M.D., Loyola U. of Chgo.
ANES
- Villwock, Michael D.
M.S.N., Rush University
CHN
- Vinci, Samuel
D.P.M., Scholl Col. of Podia.
ORTH
- Vivar, Zenaida
M.D., Philippines
PSY
- Vogel, Lawrence C.
M.D., U. of Illinois-Chgo.
PED
- Volek, Paul
M.P.H., U. of North Carolina
HSM, PATH

- Volin, Beth
M.D., Northwestern Univ.
PED
- Voltolina, Eugene J.
M.D., Loyola U. of Chgo.
PSY
- Von Roenn, Kelvin A.
M.D., U. of Kentucky
NEUS
- Vucicevic, Dusan
M.D., Yugoslavia
J.D., Loyola U. of Chgo.
ANES
- Vulgaris, William
M.D., Greece
FAM
- Wade, Margaret E.
M.D., Loyola U. of Chgo.
FAM
- Wagner, Robert H.
M.D., U. of Illinois-Chgo.
FAM
- Wagner, William A.
B.D., Nashotah House
REL
- Wagner-Lipson, Sally
M.S., Rush University
CNTR
- Wahlstrom Jr, Carl M.
B.A., U. of Illinois-Chgo.
PSY
- Wai, William Y.
M.D., Taiwan
PED
- Waickus, Cynthia Marie
M.D., Ph.D., U. of Ill.-Chgo.
FAM
- Wainer, Gary C.
D.O., Chgo. Col. of Osteo.
FAM
- Walasek, Joan A.
B.A., Natl. Col. of Educ.
MTPT
- Walcz, Erzsebet
Ph.D., Foreign College
BCH
- Walker, Valerie C.
M.D., Rush University
MED
- Wall, Timothy R.
M.D., Indiana U. of Penna.
PED
- Walraven, Ellen S.
M.D., Baylor Col. of Med.
MED
- Walsh, John J.
M.D., U. of Illinois-Chgo.
FAM
- Walsh, Patricia A.
M.D., Loyola U. of Chgo.
MED
- Walton, Jane
M.S., Arizona State U.
GERN
- Wanczyk, Teresa
D.O., Chgo. Col. of Osteo.
PED
- Wang, Benjamin J.
M.D., Rush University
MED
- Wang, Chang-Yang
M.D., Ph.D., Northwestern U.
OTO
- Wang, Jin-Zhao
Ph.D., Rutgers Univ.
DIAG
- Wang, Kuo-Fuh
M.D., Taiwan
PED
- Ward, Mark A.
M.D., Baylor Col. of Med.
PED
- Warden, Gail L.
M.H.A., U. of Michigan
HSM
- Warren, Dawn Maria
M.D., Rush University
OBG
- Warren, William H.
M.D., Univ. of Toronto
CVT, PATH
- Waskin, Hetty Anne
M.D., U. of Michigan
MED
- Wasylw, Orest
Ph.D., U. of Illinois-Chgo.
PSY, PSYC
- Waters, Gary Edward
B.S., U. of Illinois-Chgo.
OBG
- Watkins, Rena
M.D., Howard Univ.
FAM
- Watts Jr, Risher
M.D., Howard Univ.
FAM
- Waxman, Jordan
M.D., U. of Illinois-Chgo.
MED
- Weaver, Denise Cecile
M.D., Rush University
MED
- Webb, John R.
MA Webster Univ.
HSM
- Webster, Robert A.
Ph.D., Univ. of Texas
BCH, MTPT, OBG
- Weese-Mayer, Debra E.
M.D., Univ. of Chicago
PED
- Weidman, Stuart W.
Ph.D., Univ. of Chicago
MED
- Weinberg Jr, Milton
M.D., Duke University
CVT
- Weinrib, Harry P.
M.D., Ph.D., Soviet Union
PLAS
- Weinstein, Karen B.
M.D., Rush University
MED
- Weinstein, Ronald S.
M.D., Tufts University
PATH
- Weinstein, Susan
B.S., U. of Illinois-Chgo.
OCC
- Weir, Terrie Lynn
M.D., Rush University
MED
- Weis, Ernest M.
M.D., U. of Illinois-Chgo.
PED
- Weisbart, Edmond
M.D., U. of Illinois-Chgo.
FAM
- Weisberg, Mitchell R.
B.S., U. of Ill.-Cham/Urb
MED
- Weisberger, Lise
M.D., Penna. State U.
FAM
- Weiser, Stephen J.
J.D., Washington Univ.
HSM
- Weisman, Nancy E.
J.D., Illinois Inst. of Tech.
HSM
- Weiss, Gerald E.
M.D., Switzerland
PED
- Weiss, Mark S.
M.D., New York Med. Col.
PED
- Weiss, Raymond P.
M.D., Chgo. Medical Sch.
MED
- Weller, Herschel
M.D., U. of Illinois-Chgo.
MED
- Wellman, William L.
M.S., U. of Michigan
HSM
- Welsh, Brady T.
M.D., Northwestern Univ.
FAM
- Welsh, Thomas J.
D.V.M., Oklahoma St. Univ.
Ph.D., U. of Illinois-Chgo.
IMMC
- West, James Ward
M.D., Loyola U. of Chgo.
PSY
- Westerman, Maxwell P.
M.D., U. of Louisville
MED
- Westheimer, Ruth
M.D., Rush University
PSY
- Wetzel, Allan B.
Ph.D., U. of Kentucky
PMR, PSYC
- Weyrens, Francis P.
M.D., St. Louis Univ.
OBG
- Whisler, Kenneth E.
Ph.D., U. of Wisconsin
BCH, MTPT

Alphabetical Faculty Listing

- Whisler, Walter
M.D., Ph.D., U. of Ill.-Chgo.
BCH, NEU, NEUS
- Whitaker, Ronald H.
M.S., Ohio State Univ.
HSM
- White, Donald R.
M.D., Baylor Col. of Med.
PED
- Whitney, Carolyn
M.B.A., M.S.I.S., Roosevelt U.
HSM
- Wichter, Melvin
M.D., New York Med. Col.
NEU
- Wickham, Rita
M.S., Northern Illinois U.
MEDN
- Wigder, Herbert N.
M.D., U. of Wisconsin
FAM
- Wigton, Thomas R.
M.D., Medical Col. of Ohio
OBG
- Wilbanks, George D.
M.D., Duke University
OBG
- Wilcox, Kenneth
M.D., U. of Illinois-Chgo.
MED
- Wilkinson, Steven B.
M.D., U. of Missouri
NEUS
- Willander, Duane A.
M.D., Northwestern Univ.
ORTH
- Williams, Brian David
M.D., Medical Col. of Wisc.
ANES
- Williams, E. Jane
Ph.D., Ohio State Univ.
FAM, PVM
- Williams, Herlanders J.
B.A., Wartburg College
OBG
- Williams, James M.
Ph.D., Indiana Univ.
ANAT, BCH, MED
- Williams, James W.
M.D., U. of Tennessee
SUR
- Williams, Mavis T.
M.D., Brown University
PED
- Williamson, Wayne C.
M.D., U. of Cincinnati
MED
- Wilson, Diana E.
M.D., U. of Texas
NEUS
- Wilson, Robert S.
Ph.D., Wayne State Univ.
PSYC
- Wing, Herman
M.D., U. of Texas
MED
- Winkelman, Lois
M.S., Rush University
ORSN
- Winkels, Kathy
MA Western Mich. Univ.
CDS
- Winsberg, Gwynne Roese
Ph.D., Univ. of Chicago
PSY
- Winston, Leonard
D.P.M., Scholl Col. Podiatric
ORTH
- Winter, Paul L.
M.D., Northwestern Univ.
MED
- Winterfield Jr, Roland
M.D., Northwestern Univ.
MED
- Wirtshafter, Robert
M.D., Univ. of Chicago
PED
- Wisby, Marian
M.S., Rush University
GERN
- Wise, Ronald D.
M.D., U. of Illinois-Chgo.
IMMC
- Wistenberg, Lexy A.
M.D., U. of Wisconsin
MED
- Witkowski, Leon J.
M.D., Northwestern Univ.
SUR
- Witkowski, Robert
M.D., Rush University
SUR
- Witt, Thomas R.
M.D., Northwestern Univ.
SUR
- Wittert, Donna
M.S., U. of Illinois-Chgo.
ORSN
- Wiznitzer, Israel
M.D., Northwestern Univ.
MED
- Wojcik, Edward
M.D., Loyola U. of Chgo.
ORTH
- Wolf, Mark R.
D.D.S., U. of Illinois-Chgo.
OTO
- Wolfe, Charles K.
M.D., U. of Pennsylvania
MED
- Wolff, John R.
M.D., Northwestern Univ.
OBG, PSY
- Wolff, Marcy E.
M.D., U.C.L.A.
FAM
- Wolin, Preston M.
M.D., U. of Illinois-Chgo.
ORTH
- Wolinsky, Steven
M.A., Northern Illinois Univ.
MPH
- Wolter, Janet
M.D., U. of Illinois-Chgo.
MED
- Wong, Alfonso
M.D., Philippines
ANES
- Wong, Paul W.
M.D., Hong Kong
MED, PED
- Wood, Joseph P.
M.D., U. of Illinois-Chgo.
FAM
- Wood, Nancy B.
Ph.D., Rutgers Univ.
OBG
- Woodard, David O.
M.D., Syracuse Univ.
SUR
- Woodbury, George Rober
M.D., U. of Illinois-Chgo.
DERM
- Wool, Norman L.
M.D., Chgo. Medical Sch.
SUR
- Wright, Donovan G.
M.D., U. of Minnesota
PSY
- Wright, Robert B.
M.D., U. of Illinois-Chgo.
NEU
- Wu, Dickson S.
M.D., Indiana U. of Penna.
ANES
- Wyhinny, George
M.D., U. of Illinois-Chgo.
OPHT
- Wyhinny, Patricia
B.A., Univ. of Chicago
DERM
- Yadava, Ved Prakash
M.D., India
MED
- Yamamoto, Leslie T.
M.D., Rush University
FAM
- Yang, Sen-Lian
M.D., Foreign College
OBG
- Yasoff, William A.
M.D., Northwestern Univ.
MED
- Yballe, Sonia B.
M.D., Philippines
PSY
- Yedor, Katherine E.
MA Northwestern Univ.
CDS
- Yee, Martin J.
M.D., Rush University
PMR
- Yeldandi, Vijay
M.B.B.S., India
MED
- Yellen, Harry J.
M.D., Loyola U. of Chgo.
MED

- Yellen, Steven F.
M.D., Chgo. Medical Sch.
MED
- Yellen, Suzanne B.
M.A., U. of Illinois-Chgo.
PSYC
- Yermal, Stephen
M.S., Rush University
ORSN
- Yisak, Solomon
M.D., Italy
MED
- Yokoo, Teiriki
B.A., Northwestern Univ.
B.S., Rush University
PMR
- Yordan, Edgardo
M.D., Univ. of Maryland
OBG
- Yosko, Kathleen
M.N., U. of Pittsburgh
GERN
- Young, Carolyn V.
MA Northwestern Univ.
CDS, OTO
- Young, Michael
Ph.D., Adelphi University
PSY, PSYC
- Young, Stephanie A.
M.D., Loyola U. of Chgo.
PATH
- Yrapsis, Nicholas
M.D., Greece
OBG
- Yuen, Benjamin Hak-Keu
M.B., Taiwan
MED
- Yung, Shirley
M.D.C.M., McGill Univ.
FAM
- Zacharia, Dubravko J.
M.D., Yugoslavia
OBG
- Zadylak, Robert G.
M.D., Loyola U. of Chgo.
PSY
- Zaidi, Syed S. A.
M.B.B.S., Pakistan
MED
- Zajecka, John M.
M.D., Loyola U. of Chgo.
PSY
- Zakko, Hazim Y.
M.B.Ch., Iraq
PSY
- Zallik, Ned I.
M.D., Chgo. Medical Sch.
MED
- Zaneveld, Lourens
D.V.M., Ph.D., U. of Georgia
BCH, OBG, PHY
- Zaremski, Miles J.
J.D., Case Western Res. U.
HSM
- Zaytsev, Polina
M.D., Soviet Union
PATH
- Zbilut, Joseph P.
D.N.Sc., Rush University
ORSN, PHY, REL
- Zeiger, Howard L.
M.D., S.U.N.Y. Downstate
MED
- Zeitz, Howard J.
M.D., U. of Illinois-Chgo.
IMMC, MED
- Zelinger, Allan B.
M.D., Rush University
MED
- Zelinger, Bernard B.
M.D., West Germany
OBG
- Zeller, Janice M.
Ph.D., U. of Illinois-Chgo.
IMMC, MEDN
- Zervopoulos, Evangelia
M.D., Greece
PED
- Ziarko Jr, Mitchell
M.D., U. of Illinois-Chgo.
MED
- Zielinski, Dorothy A.
M.D., Rush University
FAM
- Zieserl, Robert M.
M.S., Loyola U. of Chgo.
HSM
- Zimmerman, J.C. Chava
M.D., Wayne State Univ.
FAM
- Zimmerman, Roger P.
Ph.D., Yale University
NEU, PHY
- Zitter, Robert E.
Ph.D., West Virginia Univ.
FAM, PSYC
- Zoldan, Jack
M.D., U. of Illinois-Chgo.
MED
- Zucker, Alan J.
M.D., U. of Illinois-Chgo.
OBG
- Zuckerman, Victor
D.O., Phila. Col. Osteo. Med.
PED
- Zurbrugg, Jo B.
M.D., Washington Univ.
PED



ENDOWED CHAIRS

Endowed Chairs at Rush-Presbyterian-St. Luke's Medical Center

Endowment provides the margin for excellence at Rush University as generous and far-sighted giving helps build leadership among the faculties. Commitments for endowed chairs provide the donor with the satisfaction of enabling Rush faculty to advance education and research in the conquest of disease and make it possible for Rush University to continue to attract scientists and educators of the highest quality. There are now 49 endowed chairs at the Medical Center, more than half of them fully funded.

The following chairs are currently occupied:

Jean Schweppe Armour Chair of Neurology

This, the first endowed chair at a private hospital in this country, was established in 1963 as memorial to Jean Schweppe Armour by A. Watson Armour III, other members of the Armour family, and by her friends as a tribute to her leadership as a volunteer for the Medical Center and as a member of its Woman's Board.

Holder: Jacob H. Fox, M.D.

The Jean Schweppe Armour
Professor of Neurology
Chairman of the Department
of Neurological Sciences

John W. and Helen H. Watzek Chair of Biochemistry

Established in 1965 by John W. Watzek, Jr., an industrialist, to honor the memory of his parents. The decision grew out of a relationship with the Medical Center and with his physician, the late Richard B. Capps, M.D.

Holder: Klaus E. Kuettner, Ph.D.

The John W. and Helen H. Watzek
Professor of Biochemistry
Professor of Orthopedic Surgery
Chairman of the Department
of Biochemistry

Josephine Dyrenforth Chair of Gastroenterology

Established in 1968 by a bequest of Mrs. Josephine Dyrenforth in appreciation of the care given her husband, Arthur, a well known Chicago attorney.

Holder: Seymour M. Sabesin, M.D.

The Josephine Dyrenforth
Professor of Gastroenterology

Woman's Board Chair of Pediatrics

Established in 1968 by the Woman's Board of Rush-Presbyterian-St. Luke's Medical Center as the first endowed chair of pediatrics at any hospital in the nation and the first major endowment by the Woman's Board.

Holder: Samuel P. Gotoff, M.D.

The Woman's Board Professor
of Pediatrics
Chairman of the Department
of Pediatrics.

Elodia Kehm Chair of Hematology

Established in 1969 through a bequest by Mrs. Kehm in honor of her husband to further research into the cause, prevention and cure of cancer and related diseases.

Holder: William H. Knospe, M.D.

The Elodia Kehm Professor
of Hematology

Willard L. Wood, M.D., Chair of Rheumatology

Established in 1969 through a bequest of the late Charles S. Pillsbury, his family, and other grateful patients of Willard L. Wood, M.D. Dr. Wood was a graduate of Rush Medical College and, as a physician and faculty member gave over 55 years years of service to the Medical Center.

Holder: Thomas J. Schnitzer, M.D., Ph.D.

The Willard L. Wood, M.D.
Professor of Rheumatology

John M. Simpson Chair of Obstetrics and Gynecology

Established in 1970, this chair recognizes the philanthropy of John M. Simpson, a trustee of the Medical Center for 37 years.

Holder: George D. Wilbanks, Jr., M.D.

The John M. Simpson Professor
of Obstetrics and Gynecology
Chairman of the Department
of Obstetrics and Gynecology

**Bishop Anderson
Chair of Religion and Medicine**

Established in 1970 through the philanthropy of Mrs. Laurance Armour, Sr., and the leadership of Bishop Charles P. Anderson, Bishop of the Episcopal Diocese of Chicago from 1900-1930, as an important recognition of the heritage and commitment of Rush-Presbyterian-St. Luke's Medical Center.

Holder: Laurel A. Burton, Th.D.
The Bishop Anderson Professor of
Religion and Medicine
Chairman of the Department of
Religion, Health
and Human Values

**Harry Boysen, M.D.,
Chair of Obstetrics and Gynecology**

Established in 1970 by gifts from the Woman's Board, the Trustees, and grateful patients of Harry Boysen, M.D., who dedicated 46 years of his career to Rush-Presbyterian-St. Luke's Medical Center.

Holder: Lourens J.D. Zaneveld, D.V.M., Ph.D.
The Harry Boysen, M.D., Professor
of Obstetrics and Gynecology

**Ralph C. Brown, M.D.,
Chair of Internal Medicine**

Established in 1970 in memory his father by R. Gordon Brown, M.D., also a graduate of Rush Medical College. Dr. Brown served as professor of medicine and a medical staff member of Presbyterian-St. Luke's Hospital until his death in 1954.

Holder: Roger C. Bone, M.D.,
The Ralph C. Brown, M.D.,
Professor of Internal Medicine
Acting Dean, Rush Medical College
Interim Vice President for
Medical Affairs

**Thomas J. Coogan, Sr., M.D.,
Chair of Immunology**

Established in 1971 in tribute to the late Thomas J. Coogan, M.D., and in memory of Benjamin F. Lindheimer by his daughter, Marjorie Lindheimer Everett, who recognized Dr. Coogan's outstanding service to the medical profession and encouraged the great progress in the discipline of immunology at Rush.

Holder: Henry Gewurz, M.D.
The Thomas J. Coogan, Sr., M.D.,
Professor of Immunology
Chairman of the Department of
Immunology/Microbiology

**James Lowenstine
Chair of Internal Medicine**

Created in 1971 by the Lowenstine Foundation, the family of Mr. Lowenstine and Mr. Lowenstine himself, to promote the philosophy of patient-centered care particularly the clinical training of the family doctor.

Holder: Stuart Levin, M.D.
The James Lowenstine Professor
of Internal Medicine
Acting Chairman of the
Department of Internal Medicine

**Stanley G. Harris, Sr.,
Chair of Psychiatry**

Established in 1972 as a lasting memorial to the late Stanley G. Harris, Sr., who provided Rush-Presbyterian-St. Luke's with leadership and philanthropy for many years.

Holder: Jan A. Fawcett, M.D.
The Stanley G. Harris, Sr.,
Professor of Psychiatry
Chairman of the Department
of Psychiatry

**Stanton A. Friedberg, M.D.,
Chair of Otolaryngology
and Bronchoesophagology**

Established in 1973 by the family, patients and friends of Stanton A. Friedberg, M.D., a preeminent physician and teacher of Rush Medical College and president of the medical staff from 1964 to 1966.

Holder: David D. Caldarelli, M.D.
The Stanton A. Friedberg, M.D.,
Professor of Otolaryngology
and Bronchoesophagology
Chairman of the Department
of Otolaryngology and
Bronchoesophagology

**Jack Fraser Smith
Chair of Surgery**

Established in 1974 by Bertha Spaeti Smith to recognize and honor, in memory of her husband, outstanding physicians and surgeons in the Department of General Surgery.

Holder: James W. Williams, M.D.
The Jack Fraser Smith
Professor of Surgery
Director of the Section of
Transplantation, Department
of General Surgery

**Francis N. and Catherine O. Bard
Chair of Physiology**

Established in 1975 by bequest of Francis N. Bard, who took an active interest in the Medical Center, an interest which his family continues.

Holder: Robert S. Eisenberg, Ph.D.
The Francis N. and Catherine O.
Bard Professor of Physiology
Chairman of the Department
of Physiology

**Otho S. A. Sprague
Chair of Pathology**

Established in 1975 to recognize the Otho S. A. Sprague Memorial Institute which was created through the will of Otho S. A. Sprague, civic leader in Chicago at the turn of the century, and which since 1938 has supported research at Rush, especially the Departments of Biochemistry, Immunology/Microbiology and Pathology.

Holder: Victor Gould, M.D.
The Otho S. A. Sprague Professor
of Pathology, Emeritus

**Samuel G. Taylor III, M.D.,
Chair of Oncology**

Established in 1976 by friends, patients and colleagues, this Chair honors a distinguished leader in medicine, a 1932 Rush Medical College graduate, a founder of the Illinois Cancer Council and an active participant in the National Institutes of Health and the American Cancer Society.

Holder: Jules E. Harris, M.D.
The Samuel G. Taylor III, M.D.,
Professor of Oncology
Director of the Rush Cancer Center

**William A. Hark, M.D. - Susanne G. Swift
Chair of Orthopedic Surgery**

Established in 1977, the Hark-Swift Chair brings together the names of a physician and patient as an abiding reminder of that special relationship. It was funded by family and friends of the late William A. Hark, M.D., the estate of Susanne G. Swift--a former patient of Dr. Hark--and members of the medical staff, Department of Orthopedic Surgery.

Holder: Jorge O. Galante, M.D., D.M.Sc.
The Hark-Swift Professor
of Orthopedic Surgery
Chairman of the Department
of Orthopedic Surgery

**Robert C. Borwell
Chair of Neurology**

Established in 1978 by Robert C. Borwell, Trustee of Rush-Presbyterian-St. Luke's Medical Center, to set an example for others to follow for the endowment needs of the new Rush University and to support the research and treatment of multiple sclerosis and related diseases.

Holder: Floyd A. Davis, M.D.
The Robert C. Borwell
Professor of Neurology
Director of the Multiple
Sclerosis Center

**John L. and Helen Kellogg
Dean of the College of Nursing**

Established in 1978 by the John L. and Helen Kellogg Foundation in the College of Nursing as part of a munificent \$4.5 million gift which also named the Kellogg Pavilion and created the John L. and Helen Kellogg National Center for Excellence in Nursing at the Medical Center as a memorial to Mr. and Mrs. Kellogg.

Holder: Kathleen Gainor Andreoli, D.S.N.
The John L. and Helen Kellogg
Dean of the College of Nursing
Vice President for Nursing Affairs

**Helen Shedd Keith
Chair of General Surgery**

Established in 1980 in tribute to Helen Shedd Keith, first a member of St. Luke's Hospital Woman's Board and later of the combined boards of both Presbyterian and St. Luke's Hospitals, a founder of the Anchor Cross Society, and generous donor to Rush-Presbyterian-St. Luke's Medical Center. The chair was endowed by her daughter and son-in-law, Mary and John Bent. Bent is a Life Trustee of the Medical Center.

Holder: Steven G. Economou, M.D.
The Helen Shedd Keith
Professor of General Surgery
Chairman of the Department of
General Surgery

**Clark Wylie Finnerud, M.D.,
Chair of Dermatology**

Established in 1981 by Mrs. Clark W. Finnerud in honor of her late husband, distinguished alumnus and professor of Rush Medical College and towering figure in the field of American dermatology.

Holder: Frederick D. Malkinson, M.D., D.M.D.
The Clark Wylie Finnerud, M.D.,
Professor of Dermatology
Chairman of the Department of
Dermatology

**William Gottschalk, M.D.
Chair of Anesthesiology**

Established in 1984 by family, friends, patients and colleagues to honor the late William Gottschalk, M.D., internationally recognized authority in anesthesiology and gynecology, and associate chairman of the Department of Anesthesiology from 1975 to 1984.

Holder: Anthony D. Ivankovich, M.D.,
The William Gottschalk
Professor of Anesthesiology
Chairman of the Department
of Anesthesiology

**The Coleman/Fannie May Candies
Foundation Chair**

Established in 1985 through the magnificent commitment of \$3 million from the Coleman/Fannie May foundation, Inc., this endowment includes the directorship of The Thomas Hazen Thorne Bone Marrow Transplant Center, as well as endowment for research efforts and for expansion of the current facility.

Holder: Herbert Kaizer, M.D., Ph.D.
The Coleman/Fannie May Candies
Foundation Professor

**Women's Board
Chair of Child Psychiatry**

Established in 1985 by the Women's Board of Rush-Presbyterian-St. Luke's Medical Center to serve the needs of children of the community.

Holder: Elva Pozanski, M.D.
The Women's Board Professor
of Child Psychiatry

**Claude N. Lambert, M.D.-Helen S. Thompson
Chair in Orthopedic Surgery**

Established in 1978 and endowed through the generous bequest of Helen S. Thompson, a patient, long-time friend and neighbor of the late Claude N. Lambert, M.D., who served Rush-Presbyterian-St. Luke's Medical Center for 40 years and was a leader in setting the Department of Orthopedic Surgery on the course which has brought it international stature.

Holder: Thomas P. Andriacchi, Ph.D.
The Claude N. Lambert, M.D. -
Helen S. Thompson Professor
of Orthopedic Surgery

**Charles J. and Margaret Roberts
Chair of Preventive Medicine**

This chair was established in 1987 through a bequest from Mr. and Mrs. Charles J. Roberts, patients and long-time friends of George W. Stuppy, M.D., a member of the medical staff for almost 50 years. Their generosity endowed the Charles J. and Margaret Roberts Fund for Preventive Medicine which supports the Chair and other programs at the Medical Center.

Holder: James A. Schoenberger, M.D.
The Charles J. and Margaret
Roberts Professor of
Preventive Medicine
Chairman of the Department of
Preventive Medicine

**James B. Herrick, M.D.
Chair of Heart Research**

Established in 1987 through a bequest from Mr. and Mrs. Charles J. Roberts, this Chair recognizes the significant contributions of Dr. James B. Herrick, one of the first faculty members of Rush Medical College, to cardiology and internal medicine.

Holder: Joseph E. Parillo, M.D.
The James B. Herrick Professor
of Heart Research
Director of the Heart Institute

**George W. Stuppy, M.D.
Chair of Arthritis**

This chair was established in 1987 through a bequest from Mr. and Mrs. Charles J. Roberts. It honors their special relationship with Dr. Stuppy as family friend and physician and his distinguished career of nearly 50 years as physician, scientist and teacher at the Medical Center.

Holder: Eugene J-M. A. Thonar, Ph.D.
The George W. Stuppy, M.D.
Professor of Arthritis

**Catharine and R. Winfield Ellis -
Philip N. Jones, M.D.
Chair of University Affairs**

Through this chair, established in 1988, the Ellis family honored Philip N. Jones, M.D., senior attending physician in internal medicine, and provided for financial assistance for students of Rush University, especially those enrolled in the colleges of medicine and nursing.

Holder: John E. Trufant, Ed.D.
The Catharine and R. Winfield Ellis -
Philip N. Jones, M.D.,
Professor of University Affairs
Dean, College of Health Sciences
Dean, The Graduate College
Vice President for Academic
Support Services

**Alla V. and Solomon Jesmer
Chair of Gerontology and Geriatric Medicine**

This chair was established in 1988 through a bequest of Solomon Jesmer, as a tribute to his late wife and to the care both received at the Johnston R. Bowman Health Center for the Elderly and with the hope of advancing research and education in the fields of gerontology and geriatric medicine.

Holder: Denis Evans, M.D.

The Alla V. and Solomon Jesmer
Professor of Gerontology and
Geriatric Medicine

**Colonel Robert R. McCormick
Chair of Diagnostic Imaging**

Established in 1989 through a gift from the Robert R. McCormick Charitable Trust, this Chair reflects the Trust's commitment to scientific investigation and diagnostic imaging.

Holder: David A. Turner, M.D.

The Colonel Robert R. McCormick
Professor of Diagnostic Imaging
Director of The
Robert R. McCormick
Magnetic Resonance Facility

**The United Parkinson Foundation of Chicago
Chair of Neurological Sciences**

Established in 1991 by the United Parkinson Foundation of Chicago to promote the innovative and effective research necessary to further progress in Parkinson's Disease.

Holder: Harold L. Klawans, M.D.

The United Parkinson Foundation
Professor of Neurological Sciences

In addition, the following chairs are either partially or fully endowed but are currently unoccupied:

**Richard B. Capps, M.D.,
Chair of Hepatology**

Established in 1968 by friends and patients in recognition of the contributions of Richard B. Capps, M.D., to medicine, particularly his pioneering research and study of hepatitis.

Chair of Cardiovascular-Thoracic Surgery

Established under the leadership of John Bent, Trustee, in 1970.

**J. Bailey Carter, M.D.,
Chair of Cardiology**

Established in 1972 by his widow, Ruth, this chair honors J. Bailey Carter, M.D., a well-known professor of cardiology on the Rush Medical College faculty from 1928 to 1938.

**Harriet Blair Borland
Chair of Pathology**

Established in 1972 by Chauncey B. Borland, a Trustee of Rush-Presbyterian-St. Luke's Medical Center for many years, in memory of his mother who shared his interest in clinical pathology and supported the same interests during her lifetime.

**Max Sadove, M.D.,
Chair of Anesthesiology**

Established in 1973 primarily by gifts from members of the Department of Anesthesiology and named in 1984 to honor Max S. Sadove, M.D., chairman of the Department of Anesthesiology from 1971 to 1979, whose leadership brought the department to international stature.

**James A. Campbell, M.D.,
Distinguished Service Chair**

Established in 1981 by a group of former chairmen of the Trustees and special friends of the Medical Center to recognize permanently the vision, imagination, and personal dedication of James A. Campbell, M.D., president of the Medical Center from 1964 to 1983.

**Muehrcke-Kark
Chair of Nephrology**

Established in 1981, this chair honors Robert M. Kark, M.D., Professor of Internal Medicine at Rush Medical College, who is known for his pioneer work in renal biopsies and his dedication to the education of young physicians. It also honors the family of his former student, Robert C. Muehrcke, M.D., whose generous commitment initiated the Chair.

**The CIBA-GEIGY
Chair of Biochemistry**

Established in 1987 by CIBA-GEIGY, the American arm of the multinational chemical and pharmaceutical firm headquartered in Switzerland, with hopes of conquering arthritis as one of mankind's most widespread afflictions and as an example of the productive relationships between industry and academic medicine.

**John W. Curtin, M.D.
Chair in Plastic and Reconstructive Surgery**
Established in 1989 through the efforts of Mr. and Mrs. William A. Thomas, Sr., and other patients, friends and colleagues, to honor the long-time chairman of the Plastic and Reconstructive Surgery Department.

**Dr. Glenn G. and Blanche S. Ehrler
Chair of Obstetrics and Gynecology**

This chair was established in 1989 through a bequest of Dr. and Mrs. Glenn G. Ehler. Dr. Ehler, a surgeon, was a 1931 graduate of Rush Medical College and did his internship at Presbyterian Hospital.

**Independence Foundation
Chair in Nursing Education**

This chair was established in 1989 by the Independence Foundation of Pennsylvania, to advance nursing education and promote the pivotal role of nursing today and in the twenty-first century.

**Cynthia Oudejans Harris, M.D.
Chair of Psychiatry**

This chair, established in 1989, honors the daughter of a former Trustee, Stanley G. Harris, Sr., and the sister of Life Trustee Stanley G. Harris, Jr., who dedicated her life to the practice of psychiatric medicine.

**Stanley G. Harris Family
Chair of Psychiatry**

Established in 1989, this chair pays tribute to the Harris family's faithful stewardship of the Medical Center through the years.

**Joseph and Florence Manaster Foundation
Chair of Multiple Sclerosis**

A gift from the Joseph and Florence Manaster Foundation established this chair in 1989. It reflects the concern of Joseph Manaster, whose first wife suffered from multiple sclerosis (M.S.), that M.S. patients be provided with compassionate care in perpetuity.

**Frances T. and Lester B. Knight
Chair of Gynecologic Oncology**

Established in 1990 through the philanthropy of the Lester B. Knight Foundation, at the direction of Mrs. Frances T. Knight, for the purpose of furthering the diagnosis and treatment of ovarian cancer through education and research. This chair pays tribute to the memory of the late Mr. Knight and recognizes Mrs. Knight for her foresight and commitment to Rush.

Also representing a major endowment is:

**The William Noble Lane
Medical Research Organization**

This, the first Medical Research Organization in the Midwest and the second in the nation, honors the memory of William Noble Lane, distinguished civic leader and entrepreneur. It was established in 1980 by the William Noble Lane Foundation to engage in medical research in conjunction with a hospital.

Principal Investigator:

Eugene J-M. A. Thonar, Ph.D.
Assoc. Professor of
Biochemistry



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Grinnell College, Grinnell, Iowa
Illinois Benedictine College, Lisle, Illinois
Illinois Institute of Technology, Chicago, Illinois
Knox College, Galesburg, Illinois
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Macalester College, St. Paul, Minnesota
Monmouth College, Monmouth, Illinois
North Central College, Naperville, Illinois
Ripon College, Ripon, Wisconsin
Rosary College, River Forest, Illinois
Wheaton College, Wheaton, Illinois

Clinical Network

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Central DuPage Hospital, Winfield, Illinois
Christ Hospital and Medical Center,
Oak Lawn, Illinois
Elmhurst Memorial Hospital, Elmhurst, Illinois
Galesburg Cottage Hospital, Galesburg, Illinois
Grant Hospital of Chicago, Chicago, Illinois
LaGrange Memorial Hospital, LaGrange, Illinois
LaPorte Hospital, LaPorte, Indiana
Marianjoy Rehabilitation Center, Wheaton, Illinois
St. Mary's Hospital, Streator, Illinois
Swedish Covenant Hospital, Chicago, Illinois
West Suburban Hospital Medical Center,
Oak Park, Illinois

Committees

Rush Medical College

Committees exist within the structure of Rush Medical College to assure the appropriate involvement of faculty and students in the various activities of the college. Except for the Rush Medical College Student Council, each committee includes representation from both faculty and students.

Faculty Council. The Faculty Council is the senior representative body within Rush Medical College. The membership includes nine professors, three associate professors, three assistant professors, three instructors or assistants, and one student from each class, each chosen by vote of the corresponding constituency.

Committee on Committees. The Committee on Committees has as its primary responsibility the nomination of individuals to serve on the various standing committees of the medical college. Sitting as the Committee on Dialogue, the committee is also responsible for dealing with grievances presented by members of the Rush Medical College community.

Student Council. The Student Council is the representative government for students of Rush Medical College and consists of six representatives from each of the four classes within the medical school. The council provides a mechanism to facilitate the exchange of information on matters affecting the student body.

The standing committees of Rush Medical College include:

Committee on Academic Freedom. This committee concerns itself with questions of academic freedom. It works closely with the Committee on Dialogue and the Faculty Council in resolving grievances involving questions of academic freedom.

Committee on Admissions. Members of this committee are responsible for recommending to the dean students for admission to the medical college. The duties of the committee members include selecting those applicants who will be interviewed; interviewing candidates; choosing applicants who will be offered acceptances to the medical college; and reviewing criteria applied from medical student admissions to maintain academic excellence.

Committee on Affirmative Action. The Committee on Affirmative Action serves to advise the dean and the faculty regarding policies, procedures, and issues which affect the recruitment, retention, and promotion of minority and women faculty and students in the college. The committee works closely with the equal opportunity coordinator for academic affairs.

Curriculum Committee. The Curriculum Committee is responsible for the design and content of the curriculum. On the basis of its own surveys and the evaluations of the Committee on Educational Appraisal, this committee evaluates the need for and, as deemed appropriate, develops recommendations for curricular modification.

Committee on Educational Appraisal. The Committee on Educational Appraisal is responsible for evaluating the courses of Rush Medical College. The committee administers, with the assistance of each course director, and analyzes course, clerkship, and faculty assessments provided by students. An annual report is produced for each course within the medical college curriculum.

Committee on Educational Resources. The principal function of the Committee on Educational Resources is to evaluate the utilization, organization and effectiveness of the sections of the Center for Educational Resources as they relate to the faculty and students of the medical college.

Committee on Senior Faculty Appointments and Promotions. The function of the Committee on Senior Faculty Appointments and Promotions (COSFAP) is to review recommendations submitted by chairpersons for appointments or promotions of faculty members to academic ranks of indefinite terms in Rush Medical College. Recommendations for appointments or promotions are then submitted to the office of the dean for further action.

Committee on Student Affairs. The Committee on Student Affairs (COSA) is concerned with noncurricular needs of medical students. Its regular responsibilities include an annual evaluation of the effectiveness and adequacy of programs and services available to students, improvement of current programs, and initiation of new activities when their need is recognized. The committee works closely with the University office of student services.

Committee on Student Evaluation and Promotion. The Committee on Student

Evaluation and Promotion (COSEP) is responsible for developing policies concerning student status, evaluation and promotion; reviewing the academic performance of medical college students; making recommendations to the Faculty Council and dean concerning promotion, graduation and dismissal of students; and determining requirements for remedial action for students who have failed medical college courses.

Committee on Student Judiciary Review. It is the responsibility of the Committee on Student Judiciary Review to develop and recommend to the Faculty Council policies and procedures which promote the maintenance of ethical and professional standards for Rush Medical College students and to investigate and adjudicate charges of student misconduct of a nonacademic nature including, but not limited to: violations of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms, or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her profession or other conduct which is inconsistent with generally accepted standards of behavior within an academic community or the medical profession. All charges of student misconduct of a nonacademic nature shall be presented to the associate dean for medical student programs by students or faculty. The committee shall submit its recommendation to the Faculty Council, which, in turn shall make a recommendation to the dean who will then render a final, nonappealable decision on the charges.

College of Nursing

Faculty Senate. The Faculty Senate is the governing body for the faculty and operates as the Committee on Committees. The senate has nine members representing each academic rank level, as well as members from the faculty-at-large. Members of this body are elected annually and the senate elects its own chairperson. Two student representatives also serve on the senate.

The standing committees of the College of Nursing assist with the work of the college. Members of the committees are elected by the total faculty every June. The committees include:

Committee on Admissions. This committee is responsible for maintaining the admission and progression standards and policies for all nursing programs. There are five members on this committee plus one student representative.

Committee on Progressions. This committee is responsible for maintaining the admission and progression standards and policies for the all nursing programs. There are six members on this committee plus one student representative.

Curriculum. This committee serves as the monitoring resource for the curriculum. The committee reviews all new courses and/or major changes in the curriculum, establishes and monitors methodology for curriculum evaluation and provides overall consistency for curriculum development. There are five members on this committee plus one student representative.

Affirmative Action. This committee is involved with the recruitment and retention of students and faculty from minority groups and data collection and research in relation to affirmative action activities and progress. There are six members on this committee including one student representative.

Educational Resource. This committee deals with the educational resource needs of the College of Nursing and provides liaison with the University Educational Resource Committee. There are seven members on this committee including two student representatives.

Faculty Appointments and Promotions Committee. This committee acts upon the appointments and promotions of faculty in accordance with the Rules of Governance. There are five members on this committee.

Faculty Development Committee. This committee is responsible for the design and implementation of programs to promote the growth and development of faculty. There are six members on this committee including a student representative.

College of Health Sciences

College Council. The senior representative governing body of the College of Health Sciences is the College Council. The College Council membership is comprised of both faculty members and students. The dean of the college serves as chairperson. Faculty members represent all departments and ranks. Students represent both undergraduate and graduate levels.

Committee on Senior Faculty Appointments and Promotions. This committee recommends all promotions and appointments of faculty and to senior rank. It is elected by the faculty and has representatives from all departments in the college.

The Graduate College

The Graduate College Council. The Graduate College Council is the senior representative body for The Graduate College. The committee is comprised of all program directors, three elected faculty-at-large representatives and two student representatives. The Graduate College Council is chaired by the dean of The Graduate College.

Curriculum Committee. This committee reviews all courses and programs of study, including new programs and courses, and makes recommendations to The Graduate College Council.

Rush University Honorary Degree Recipients

- 1973** Robert J. Glaser, M.D.
President, Henry J. Kaiser Foundation
- William George Anlyan, M.D.
Vice President, Health Affairs
- Mark Hummer Lepper, M.D.
Chairman, Comprehensive Health Planning Board
State of Illinois
- 1974** Robert Higgins Ebert, M.D.
Caroline Shields Walker Professor of Medicine
Dean of the Faculty of Medicine, Harvard Medical
School
- 1975** John H. Knowles, M.D.
President, Rockefeller Foundation
- Virginia Henderson, M.A.
Senior Research Associate Emeritus, School of
Nursing, Yale University
- 1976** James Harvey Young, Ph.D.
Professor of History, Emory University
- Jessie M. Scott, R.N., M.A.
Assistant Surgeon General and Director, Division of
Nursing, Health Resources Administration
United States Department of Health, Education and
Welfare
- 1977** David A. Hamburg, M.D.
President, Institute of Medicine of the National
Academy of Sciences
- 1978** Julius B. Redmond, M.D.
Assistant Secretary for Health, Education and
Welfare
- 1979** Gerard Piel, B.A.
Publisher and President, Scientific American
- 1980** Harriet Waltzer Sheridan, Ph.D.
Dean of the College, Brown University
- 1981** Thomas Harrison Hunter, M.D.
The Owen R. Cheathan Professor of Science
University of Virginia School of Medicine
- 1982** Walter J. McNeerney, M.H.A.
Immediate Past President of the Blue Cross and
Blue Shield Association
Professor of Health Policy, Northwestern University
- 1983** Baruch S. Blumberg, M.D., Ph.D.
Nobel Laureate
Associate Director, Clinical Research, Institute for
Cancer Research, Fox Chase Cancer Center,
Philadelphia, Pennsylvania
- 1984** Julius R. Krevans, M. .
Chancellor, University of California at San Francisco
- 1985** Special Convocation
Eli Ginzberg, Ph.D.
The A. Barton Hepburn Professor Emeritus in
Economics, Columbia University
- David E. Rogers, M.D.
President, the Robert Wood Johnson Foundation
- Virginia V. Weldon, M.D.
Vice President, Washington University Medical
Center
- 1985** Edward N. Brandt, Jr., M.D., Ph.D.
Chancellor, University of Maryland, Baltimore
- 1986** Edward J. Stemmler, M.D.
Dean, University of Pennsylvania School of Medicine
- 1987** The 150th Anniversary Commencement
The Honorable Dan Rostenkowski
Chairman, House Ways and Means Committee
- Raymond C. Baumhart, S.J.
President, Loyola University of Chicago
- Arnold R. Weber, Ph.D.
President, Northwestern University
- Hanna Holbern Gray, Ph.D.
President, The University of Chicago
- Stanley O. Ikenberry, Ph.D.
President, The University of Illinois
- 1988** Samiel O. Thier, M.D.
President, The Institute of Medicine of the National
Academy of Sciences
- 1989** Leon M. Lederman, Ph.D.
Director, Fermi National Accelerator Laboratory
- 1990** Louis W. Sullivan, M.D.
United States Secretary of Health and Human
Services

